



Commonwealth of Massachusetts
Executive Office of Health and Human Services
Next Generation System Planning Project

Deliverable 7A (DDS): Final As-Is Technical Capability Matrix
(Based on MITA SS-A – Version 2.0)

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Erin Ferrari, Project Manager

The Commonwealth of Massachusetts
Executive Office of Health and Human Services
One Ashburton Place, 11th Floor
Boston, MA 02108
erin.ferrari@state.ma.us

Charlie Leadbetter, Project Principal/Project Manager

BerryDunn
100 Middle Street, PO Box 1100
Portland, ME 04104-1100
cleadbetter@berrydunn.com

Technical Capability Matrix (TCM) Draft Version

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Executive Summary

This Technical Capability Matrix (TCM) report is intended to serve The Commonwealth of Massachusetts Executive Office of Health and Human Services (EOHHS) and its Agencies to define the current state of their technical environment and to formalize the desired future state of their technical environment. As the Department of Developmental Services (DDS) strives to improve their technical environment in support of their day-to-day business, it is imperative that the current environment is objectively understood and documented. This report informs DDS leadership with a level of detail necessary to support effective planning for an optimized future state. As a source document, this report is a key artifact in the planning and creation of the RFI and subsequent RFR(s), leading to the implementation of a comprehensive MITA-compliant solution.

The Centers for Medicare & Medicaid Services (CMS), through its Medicaid Information Technology Architecture (MITA), provides a framework and guidance for states to assess capabilities and maturity across business, information and technical architectures. Specifically, the Technical Capability Matrix (TCM) within MITA is intended to assist states in the assessment of their levels of technical capability and maturity. The TCM provides a mechanism that allows a state to systematically mature the enterprise to keep up with the constantly changing world of technology.

The TCM team comprised of BerryDunn, the Commonwealth and DDS has successfully collaborated and completed the TCM assessment. As a guiding principle for this activity, the TCM team orchestrated the technical assessment from a business perspective, whereby the business process/architecture provided the baseline to drive the technical architecture, thus preserving the concept that technical capabilities are enablers of business processes.

The assessment indicates that although the DDS technical landscape is functional, it is primarily a legacy environment and is a candidate for improvement. This is indicated by the average range of score from 1.0 to 1.5 on a scale of 1.0 to 5.0 as depicted below in Figure 1.

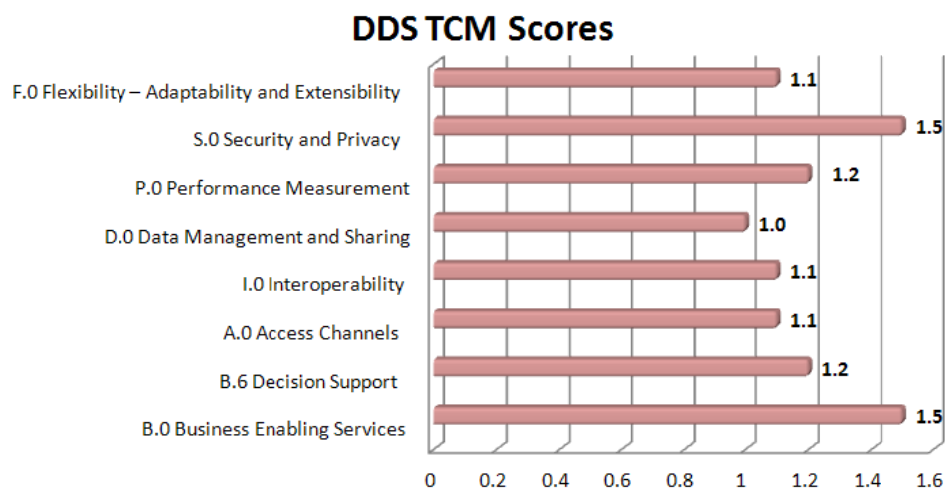


Figure 1: DDS TCM Average Scores by Technical Area (Scale = 1.0 – 5.0)

At the core of DDS's technology environment is a customized Commercial-off-the-Shelf (COTS) product from MEDITECH that was implemented in 2003. Although MEDITECH is modular in design, it does not meet generally accepted Service Oriented Architecture (SOA) principles. Furthermore, DDS's technical environment receives support via a large variety of user maintained Microsoft Excel spreadsheets and Microsoft Access databases that are not typically considered enterprise standard.

The TCM team created and aligned technical "Solution Sets" based on the MITA and state specific business processes. The Solution Sets were assembled based on the DDS supporting applications and systems and assessed in accordance with the TCM definitions of technical maturity. This approach produced a valuable, contextual alignment of business and technology, and will enable DDS to maintain this alignment across targeted business and technical improvements as it moves forward in its improvement endeavors.

With respect to the TCM categories and technical areas, there are several key themes that were derived from the assessment. Of note, there are technical areas that are fundamentally addressed well including Security and Privacy, Business Enabling Services and aspects of Interoperability where standards based data exchange does occur on an enterprise service bus. The Security and Privacy category averaged the highest score among the eight (8) TCM measures with a score of 1.5. The security and privacy methods implemented across DDS seem to adhere to industry acceptable security and privacy guidance. Business Enabling Services also scored 1.5, highest amongst the eight (8) measurement areas. Business Enabling Services primarily measures Workflow Management, Form Management such as online data entry, and Business Process/Relationship Management. The higher scores seen in this technical area were largely due to the capabilities of the primary DDS systems – MEDITECH and HCSIS. These systems provide some capability for efficiencies in form management, workflow and application module level configurations. DDS has also implemented supporting applications that enhanced Solution Set scoring such as the PAM application's ability to provide performance metrics via metrics, reports and dashboards.

The areas that are under-served include Access Channels, aspects of Interoperability and Flexibility – Adaptability and Extensibility. Access Channels or those points of entry for providers, clients and staff such as web portals, browsers, kiosks, voice response systems, or mobile phones are limited today and scored a 1.1 average. Again, based on the technical architecture prevalent in the DDS environment, the scores of Interoperability and Flexibility – Adaptability and Extensibility were expectedly low and are suggested as core areas to address in the "to-be" future state. Also of note, Solution Sets that are not enabled well with technology include Scheduling and overall management of business relationships and policy.

While this report primarily serves to support the current state assessment of the DDS technical environment within the context of the MITA TCM, [Section 4.0 – Recommendations](#) provides some context for leadership to consider as it moves forward into envisioning, planning and defining requirements for the future state.

1.0 Purpose

1.1 Background

The Department of Developmental Services (DDS) has a comprehensive system of specialized services and supports for approximately 32,000 adults with developmental disabilities, children with developmental disabilities and children with autism spectrum disorders. The types of specialized services and supports include service coordination, day supports, employment supports, residential supports, family supports, individual supports, respite, and transportation through state-operated programs, participant-directed programs, and by contracting with over 200 private provider agencies. They also include initiatives such as the Turning-22, ESE/DDS project (a collaboration between the Department of Elementary and Secondary Education and DDS to prevent residential placements for children).

DDS residential supports are provided through six (6) large state- owned and operated facilities that are certified by the federal government as intermediate care facilities for the developmentally disabled (ICF/ID). Residential supports are also provided through four community-based state operated residential programs, in addition to those operated by contracted providers in the community and by non-contracted providers through DDS' participant-directed support initiative. They include 24 hour supports and home share arrangements which provide care, supervision and basic life skills and community living skills training to adults with developmental disabilities.

Other supports aim at helping individuals build and maintain their ability to participate in community activities by focusing on important skill areas that include communication, self-care, relationship building, securing employment and community involvement. They include also supplemental supports that help a family to care for their family member at home. These supports are also provided through both contracted and non-contracted providers through DDS' participant-directed support initiative.

The following briefly describes some, but not all, of the initiatives that are of concern to DDS:

- Implementation of the system and business processes to support the Agency's recently implemented Medicaid Home and Community based Waivers which allowed the implementation of the Participant Directed Support Initiative (PDSI);
- The Rolland Settlement Agreement which is at its mid-way point of placing 640 individuals currently institutionalized in Nursing Facilities into new community homes. This also includes providing additional services to these individuals such as Active Treatment and Transition Services;
- The Facilities Consolidation and Restructuring Plan approved by the Governor in December, 2008 is in the process of closing 4 of the state's 6 ICF-ID facilities and consolidating all individuals into only 2 remaining institutions;
- The ISP re-structures initiative. The Agency is in the process of re-structuring a new, improved Individual Support Plan (ISP) that is focused on an individual's vision, goals and objectives to advance the concept of self-direction;

For additional information about DDS, please go to the following web page:

[Department of Developmental Services \(DDS\) Home Page](#)

1.2 Current Technical Environment

The primary system that supports the day-to-day business functions of the Department of Developmental Services is the MEDITECH system. MEDITECH is a customized Commercial-of-the-Shelf (COTS) product running on a Magic database that was implemented at DDS in 2003. This system supports approximately 2,100 users. In addition, MEDITECH interfaces with the Commonwealth's New Medicaid Management Information System (NewMMIS) to further enhance the amount of information being shared at the state level. MEDITECH is a primary system that provides technical solutions (Solution Sets) to DDS staff's daily business needs such as:

- Enrollment/Registration, Intake, and Discharge
- Service Coordination, Tracking, and Communication
- Care Planning and Treatment
- Medical Record Management
- Claims, Billing and Financial Processing
- Legal, Forensic and Guardianship

The Home and Community Services Information System (HCSIS) has been customized to interface MEDITECH as well. HCSIS like MEDITECH provides DDS staff the ability to track, communicate and coordinate services, but unlike MEDITECH, HCSIS plays a primary role in incident management within DDS. HCSIS also supplies data to the Investigations Processing System (IPS) which allows DDS the ability to produce letters for investigative correspondence. Not surprisingly, IPS is also a primary system that supports DDS' legal, forensics and guardianship activities.

Another secondary supporting program that interfaces to MEDITECH is the MTReporting application which allows for extensive reporting from the data contained within MEDITECH such as consumer demographics, eligibility information, services received, and contract assignments. MTReporting supports about 500 DDS users and was implemented in 2005.

The Integrated Contract Management System (ICMS) is another ancillary system that assists DDS in tracking approximately \$800 million worth of Purchase of Service (POS) contracts are awarded by the agency. ICMS is a primary technology solution that allows staff to manage provider and contractor procurement.

Participant Allocation Module (PAM) enables DDS to track and manage the budgets of the individuals enrolled in the home and community based waivers. PAM is a primary technology solution that assists DDS staff with claims, billing and financial processing as well as collecting service delivery data from contracted providers. DDS has a secondary supporting system called, "Application Security", which helps to govern the security permissions of other critical systems such as MTReporting.

1.3 Technical Capability Matrix Overview

The Centers for Medicare & Medicaid Services (CMS), through its Medicaid Information Technology Architecture (MITA), provides a framework and guidance for states to assess capabilities and maturity across business, information and technical architectures. Specifically, the Technical Capability Matrix (TCM) within MITA is intended to assist states in the assessment of their levels of technical capability and maturity. This assessment, in conjunction with the Business Capability Matrix (BCM), will help Massachusetts identify their current state and plan their future business and technical architecture. CMS describes the TCM as, "... a mechanism that allows a state to systematically mature their enterprise to keep up with the constantly changing world of technology." It is important to point out that technical capabilities enable business capabilities and that the "business should drive technology".

The purpose of the TCM is to describe the boundaries and behavior of each technical area in the context of the increasing levels of the maturity. This TCM analysis by the Commonwealth of Massachusetts is based upon the Medicaid IT Architecture (MITA) 2.0 framework available at the start of this project. This project is unique in that it is not being conducted at the Medicaid enterprise-level, but rather is focused upon the current technologies within three (3) departments: Mental Health, Developmental Services, and Public Health (DHM, DDS, and BoPHF respectively).

As the MITA Framework continues to evolve (e.g. version 3.0 due out in the coming months), it encourages growth and transformation by illustrating the benefits of improving State operations and provides tools to help states achieve that transformation. States will be active participants in refining the definition of capabilities for each level. States will identify capabilities that meet their business needs: Some capabilities will be selected from the MITA TCM, and others will be new capabilities created by the state. These new capabilities will be added to the MITA TCM (in accordance with MITA procedures) and will be available for other states to use. There are 33 technical capability definitions within the first three (3) levels of maturity of the TCM that are yet to be defined by CMS. Because of this the BerryDunn team created definitions for these capabilities in an effort to increase precision of the assessment. The final Matrix used for this project can be seen in *Appendix A: Technical Capability Matrix Template*. The 33 definitions created by the BerryDunn team are highlighted in yellow in section 2.2.

Additionally, a decision to escalate the technical area of B.6 (Decision Support) from a sub-category to a parent-category was made. This decision was based on the importance and nature of this technical area. Business Enabling Services without the delineation includes eleven (11) technical areas that out-scale other similar categories such as Interoperability, Data Management and Sharing, and Performance Measurement which all include only two (2) technical areas. The eight (8) technical categories are listed below.

- (1) B.0 Business Enabling Services
- (2) B.6 Decision Support
- (3) A.0 Access Channels
- (4) I.0 Interoperability
- (5) D.0 Data Management and Sharing
- (6) P.0 Performance Measurement
- (7) S.0 Security and Privacy
- (8) F.0 Flexibility – Adaptability and Extensibility

The BerryDunn team has incorporated the use of "Solution Sets" throughout the TCM analysis and assessment. Solution sets are logical groupings of DDS systems and applications that

support a specific business function. This approach introduces alignment to the specific business processes of the Business Capability Matrix (BCM), including State Specific Processes (SSPs). The discipline of cross-walking the TCM to the BCM enhances the overall assessment by providing a direct correlation between those applications, systems, and their technologies and the correlating business processes they support. The full cross-walk can be found in: *Section 2.4*.

Solution Sets			
1	Service Determination	13	Manage Consumer Funds
2	Eligibility	14	Legal, Forensic, and Guardianship
3	Enrollment/Registration, Intake, and Discharge	15	Incident Management
4	Service Coordination, Tracking, and Communication	16	Accreditation and Licensing
5	Scheduling	17	Quality Management
6	Care Planning and Treatment	18	Provider Performance Management
7	Medical Record Management	19	Provider and Contractor Management and Procurement
8	Information Privacy and Security	20	Program Management
9	Order Entry, Laboratory, and Pharmacy	21	Manage Policy and Goals
10	Claims, Billing and Financial Processing	22	Establish and Manage Business Relationships
11	Service Delivery Data from Contracted Providers	23	Infrastructure Support and IT
12	Interagency Coordination for Shared Client Services	24	Executive Support

To support the Solution Set construction, a high-level analysis of the detailed systemic environment was performed. The BerryDunn team facilitated sessions to identify and inventory the applications and systems that are currently used within the department. A conceptual weight for each of the applications and systems was determined in the context of how significantly each contributes to the respective Solution Set. Subsequently, in the context of the Solution Set assessment and scoring, these applications and systems were further analyzed and influenced the Solution Set score based on their relative weight based on aspect and ratio (e.g. supports more users, more transactional volume, demands more day-to-day user processing time.) The full list of system inventories can be seen in *Appendix B: Application System Inventories*. This list of inventory captures pertinent details, such as the number of users, year installed, system architecture tiers, etc. The initial weighting of applications as, primary, secondary, or non-applicable support systems can be seen in *Appendix C: Weighted Solution Sets*.

2.0 Methodology

2.1 Approach

The BerryDunn team met with the Massachusetts project manager in early August, 2011 to discuss the TCM plan, schedule, approach and upcoming kick-off materials. After some internal review and revision BerryDunn reissued the TCM materials to the Commonwealth project manager on August 31, 2011. Most notably, the BerryDunn team created language for those blank definitions within the CMS issued TCM. The Massachusetts project manager agreed that having consistent and defined metrics that would be used throughout the project including across agencies was a critical to accurately capturing the TCM scoring and rationale. The project manager also reviewed the kick-off presentation that was then later used by BerryDunn to kick-off the TCM meetings with DDS TCM leads and their designated staff.

As a remote activity, the DDS TCM leads and their staff compiled an inventory of their applications/technology so that these systems could later be understood in their support (primary or secondary) to that of a specific technical solution of a business need.

Prior to holding agency specific meetings, BerryDunn held preparatory teleconferences with the DDS TCM team to ensure clarity of the language and terms of the TCM, the concept of solution sets, and to finalize system/application inventories for each agency. This was completed as a prerequisite to holding the TCM scoring sessions given those sessions would likely use up all available time due to the large volume of scores being captured (32 TCM metrics x 24 solution sets or 768 scores to capture).

The kick-off meeting was held with DDS during the week of September 12, 2011 in which solution sets were further defined and a cross-walk was created that aligned solution sets to their supporting applications. Another cross-walking effort also took place that aligned the Business Capacity Matrix (BCM) and State Specific Processes (SSPs) to the TCM.

Lastly, during the first week of October, the assessment and scoring session was held with DDS that focused specifically on ranking the solution sets within the TCM. The session was initiated by reviewing the definitions of each of the solution sets, discussing their respective applications and systems and then processing each within the context and guidance of the TCM.

The remainder of Section 2.0 is organized by this approach and the activities that BerryDunn processed for this TCM project:

- **Technical Capability Matrix Update**
- **Solution Set Creation**
- **Alignment of Business Processes**
- **Inventory Applications/Technology**
- **Alignment and Modeling**
- **Assessment and Scoring**

2.2 Technical Capability Matrix Update

During this step, the TCM was updated to address the incomplete nature of the TCM. Within the TCM of MITA 2.0, there are gaps in the definition of capabilities for specific technical areas and levels of maturity. For example, for “B.3 Business Process Management”, the TCM provides maturity definitions for Level-1 and Level-3, but not Level-2. The BerryDunn team, in collaboration with the Commonwealth’s Project Manager, made the decision to address these gaps. The goal of this decision was to attain a higher level of precision for the assessment. The BerryDunn team recommended one (1) set of definitions be developed for use by all three (3) agencies. The Commonwealth’s Project Manager supported this approach and indicated that definitions needed to be developed for Levels 1, 2 and 3 only.

In order to create the definitions for the undefined capabilities, the BerryDunn team followed the high-level guidance from the Human Services Research and Technology Institute (HSRTI) for the progression of maturity (Figure 2 below.)

Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
<i>Performed</i>	<i>Managed</i>	<i>Defined</i>	<i>Quantitatively Managed</i>	<i>Optimized</i>
Performed processes are generally informal, they are not institutionalized and improvements are frequently short-lived.	Managed processes are planned by the organization. These processes are supported by formal policies and qualified staff, and are managed according to referenced process objectives.	Defined processes are managed processes that are tailored by the organization to support a particular business / operating unit. These process descriptions include more detail, are managed more proactively and recognize a higher level of process interactions.	Quantitatively managed processes are defined processes that are enhanced by using statistical and related analytical methods.	Optimized processes are qualitatively managed processes that focus on understanding the root cause relationships between and within specified processes. These process efforts emphasize continuous improvement within and across processes.

Figure 2: Guidance to create capability definitions

In addressing the 33 undefined capabilities within the TCM, the BerryDunn team encountered blank definitions for each level of capability (1.0, 2.0, and 3.0). To explain the logic, the below example, “B.1 Forms Management” provided Level 1 and Level 2 definitions, but failed to address Level 3. To address this gap, the BerryDunn team followed the HSRTI guidance and utilized the defined levels taxonomies (1 and 2) trends to create the Level 3 definition. A similar, consistent approach was utilized for missing Level 1 and Level 2 definitions. An example of each is provided below in Figure 3, where the original TCM had previously been blank for the cells highlighted in yellow. All other definitions are CMS original definitions. The newly created definitions appear in yellow highlight and can be seen throughout the TCM. (See: *Appendix A Technical Capability Matrix Template*.)

Technical Area/Technical Function	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities
B.1 Forms Management	Manual data entry on hardcopy forms	Online data entry on electronic forms	Partially automated processes that merge known data into the forms and requires minimal electronic data entry

Technical Area/Technical Function	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities
B.3 Business Process Management (BPM)	Manual, by user (core services and accompany valued defined, infrastructure in place)	Processes are planned and executed in accordance with policy and are monitored, controlled, and reviewed	Specification and management of business processes in conformance with MITA BPM standards (e.g., Business Process Execution Language [BPEL])
P.1 Performance Data Collection and Reporting	Manual processes used, few predefined methods, requires extensive user intervention	Collect and report using predefined and ad hoc reporting methods and currently defined performance metrics	Define, implement, collect, and report using a set of business process-related performance metrics that conform to MITA-defined performance metrics

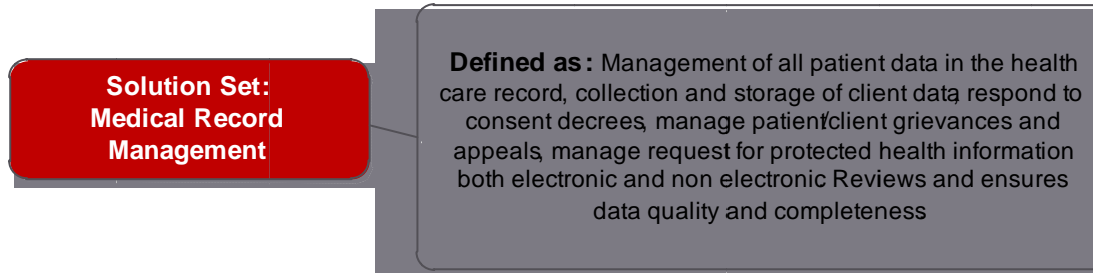
Figure 3: TCM newly defined capabilities highlighted in yellow

The BerryDunn team revised the TCM definitions and circulated the revised TCM to the BerryDunn team leads for review and comment. The final draft was presented to the Commonwealth Project Manager and a technical representative from ITD on August 31, 2011. Several additional comments were received from the Commonwealth and incorporated into the final TCM.

The BerryDunn team used this updated TCM with DDS during the week of September 12, 2011. Of the 33 definitions that the BerryDunn team created, only one (1), S.3 “Authorization and Access Control” required modification after being “field tested” by the TCM team during the assessment and scoring sessions.

2.3 Identify Solution Sets

During this step, Solution Sets were created by the TCM team based on related functional business processes as depicted below in the Medical Record Management Example.



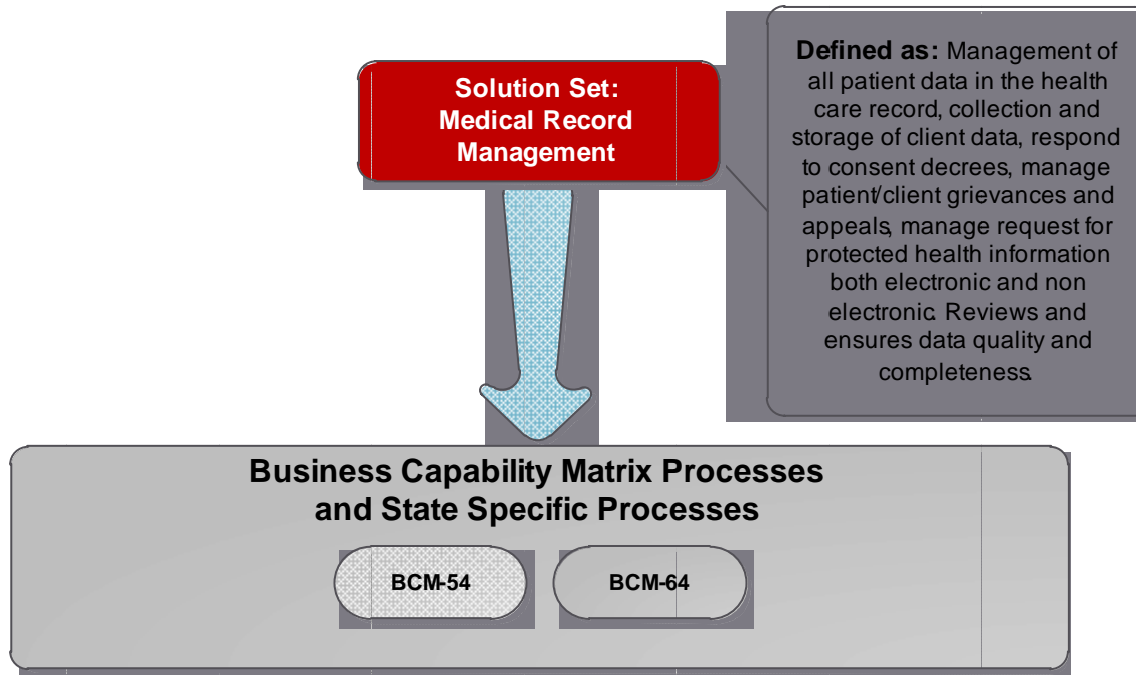
Twenty-four (24) Solution Sets were created and defined:

#	Solution Set Name	Functional Summary
1	Service Determination	Determine appropriateness for services; determine what services are needed and if they are available.
2	Eligibility	Determine eligibility, manage disallowances, manage all eligibility communications, manage all waivers, grievances and appeals related to eligibility. Manage program wait lists.
3	Enrollment/Registration, Intake, and Discharge	Intake screening, registration and admission, suspend/dis-enroll/discharge, track program capacity and censuses, and manage demographic data.
4	Service, Coordination/Tracking, and Communication	Coordination of care delivery, communication protocols, patient/client communication, coordination of discharge services and follow up care, referral authorization management, manage individual service prioritization, manage individual allocations and service budgets, manage waitlists for programs, and manage individual transportation information.
5	Scheduling	Manage staff scheduling, manage timekeeping and payroll, patient scheduling, resource scheduling, and group scheduling.
6	Care Planning and Treatment	Initial screening and assessment, treatment planning. Complete documentation of patient care using federal and state criteria, rules, best practices and professional judgment. Coordination of care delivery, discharge planning, managing patient outcomes, develops and manages individual service plans. Evaluate and document patient risk, restraint documentation and reporting of all patient care data as needed.
7	Medical Record Management	Management of all patient data in the health care record, collection and storage of client data, respond to consent decrees, manage patient/client grievances and appeals, manage request for protected health information both electronic and non electronic. Reviews and ensures data quality and completeness.
8	Information Privacy and Security	Manage compliance to privacy, security and confidentiality standards and regulations. Secure communications to meet confidentiality and legal requirements, security audits. Access based on role and level of authorization. Ensures all health information is protected.
9	Order Entry, Laboratory, and Pharmacy	Manage order entry, manage laboratory, and manage pharmacy services.
10	Claims, Billing and Financial Processing	Fiscal monitoring of patient/client, contractor services, program financial management, management position control, recruitment, accounting, 1099's, payroll, purchasing, accounts payable, revenue cycle, reimbursement, budget management and formulation, claims generation, auditing, mass adjustment, inquire payment status, manage recoupment, collections and recovery, authorize referrals and service, manage state fund, manage client specific service funds, generate financial and program analysis.
11	Service Delivery Data from Contracted Providers	Track patient data from contracted providers about quantity, type of service, delivered to individuals or groups storage of health care information.

#	Solution Set Name	Functional Summary
12	Interagency Coordination for Shared Client Services	Create and manage business relationships, and engage in joint planning. Cross agency communication of patient information including sharing of aggregate data for the purpose of utilization management and performance monitoring.
13	Manage Consumer Funds	Manage individual patient funds not related to treatment.
14	Legal, Forensic, and Guardianship	Document patient/client legal status, duty to warn, Roger's orders, forensic and guardianship data. Manage ongoing and potential legal cases/actions. Document and track risk evaluations. Coordinate and liaise with investigating agencies. Manage provider contracts. Manage client information policy. Respond to consent decrees. Manage patient grievance and appeals process.
15	Incident Management	Initiate and manage case and event reporting. Manage incident reporting. Manage medication occurrence reporting. Provide reporting on all incident types (including medication, restraint and other types).
16	Accreditation and Licensing	Manage program/providers surveys and certification. Manage accreditation and credentialing necessary for program participation. Monitor performance utilizing measures for accreditation and credentialing. Manage licensing of contracted providers.
17	Quality Management	Manage waiver programs provider qualifications, ensure program compliance as agreed upon with Medicaid, manage monitoring of national core indicators and performance measures, manage/monitor provider quality performance and compliance with standards. Conduct routine fiscal and clinical monitoring of patient outcomes and expenditures from a quality standpoint. Initiate, and manage case or event and subsequent incident reporting. Manage grievance and appeals process. Help to identify areas for improvement so preventive activities can be conducted. Perform contractor/provider outreach and training to ensure quality standards are defined. Allow for quality reporting.
18	Provider Performance Management	Establish mechanisms and requirements for developing, managing, and reporting performance measures, quality, outcomes, and other data for providers/ contractors to comply with agency, state, and federal reporting requirements. Analyze patient/client and service histories and trends, costs, and expenditures; assess external factors affecting the program; assess agency initiatives and plans; identify significant measurable activities and outcomes, and create and/or revise performance measures. Conduct and analyze client survey.
19	Provider and Contractor Management and Procurement	Manage provider/contractor procurement, awarding contracts, develop contracts, register providers/contractor, manage provider/contractor information, and close out contracts. Manage provider/contractor communications and grievance and appeals process, provide training and perform audits. Address requests for contractor/provider information. Monitor patient outcomes. Provide a provider listing of available providers to deliver services in support of participant direction. Manage transportation providers. Track participant driven budget. Manage budget billing and reimbursement for provider contracts.
20	Program Management	Manage all program individual waiver communications. Track waiver program capacities, provision and management of waiver assurances, manage individual program budgets, and manage program information. Maintain accurate tracking of housing capacity. Perform population and individual outreach.
21	Manage Policy and Goals	Develop and maintain program policy, agency goals and initiatives. Maintain state plan.
22	Establish and Manage Business Relationships	Create and manage business relationships, facilitate communication with business relationships. Engage in joint planning to coordinate efforts and programs between agencies. Develop and maintain program policy and agency goals. Terminate business relationships.
23	Infrastructure and IT	Manage information with respect to infrastructure and information technology including but not limited to computer devices, network topology, software, and other hardware/physical assets.
24	Executive Support	Reporting capability to support executive decisions and monitor all business process areas including but not limited too; population management, resource management, financial, quality, incident reporting, contract management, productivity etc.

2.4 Alignment of Business Processes

During this step, the TCM team aligned Solution Sets to the identified business processes within the BCM as depicted below in the Medical Record Management example:



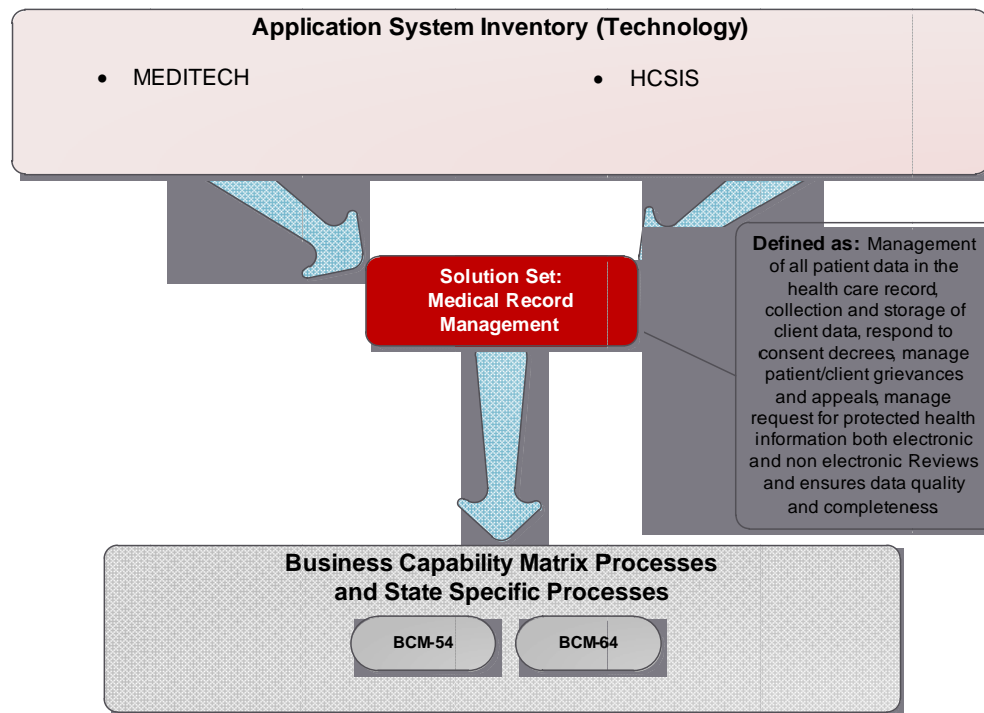
As described previously, this multi-directional alignment provides valuable information to DDS to address targeted business and technical improvements. The following table illustrates the alignment.

#	Solution Sets	Related Business Processes
1	Service Determination	n/a
2	Eligibility	1, 2, 3, 4, 10, 12, 126
3	Enrollment/Registration, Intake, and Discharge	11, 18, 23, 29, 118, 123
4	Service Coordination, Tracking, and Communication	5, 6, 13, 14, 16, 56, 58, 61, 113, 114, M7
5	Scheduling	n/a
6	Care Planning and Treatment	7, 8, 32, 90, 119
7	Medical Record Management	103
8	Information Privacy and Security	94
9	Order Entry, Laboratory, and Pharmacy	n/a
10	Claims, Billing and Financial Processing	14, 21, 57, 62, 63, M37, M59, M60
11	Service Delivery Data from Contracted Providers	82
12	Interagency Coordination for Shared Client Services	125
13	Manage Consumer Funds	21, 112
14	Legal, Forensic, and Guardianship	90, 96, 115
15	Incident Management	90, 99, 101, 102, 104, 105, 106
16	Accreditation and Licensing	50A, 50B, 116, 120

#	Solution Sets	Related Business Processes
17	Quality Management	44, 110, 120
18	Provider Performance Management	n/a
19	Provider and Contractor Management and Procurement	39, 41, 42, 44, 46, 49, 50A, 50B, 52
20	Program Management	56, 70, 78, 79, 82, 85, 117
21	Manage Policy and Goals	M56
22	Establish and Manage Business Relationships	n/a
23	Infrastructure Support and IT	94, 121, 122
24	Executive Support	36, 61, 70, 71, 79, 82, 85, 105, 106, 110, 127

2.5 Inventory Applications/Technology

During this step, department specific applications and systems that support the business processes within the BCM were identified and inventoried as depicted below in the Medical Record Management example:



Consistent with the process, this dimension of the alignment provides clarity to what the applications (or technology) environment consists of and how it enables the business processes. Key attributes such as the number of users that use the system, the system's age, and the type of data handled have been captured as outlined below.

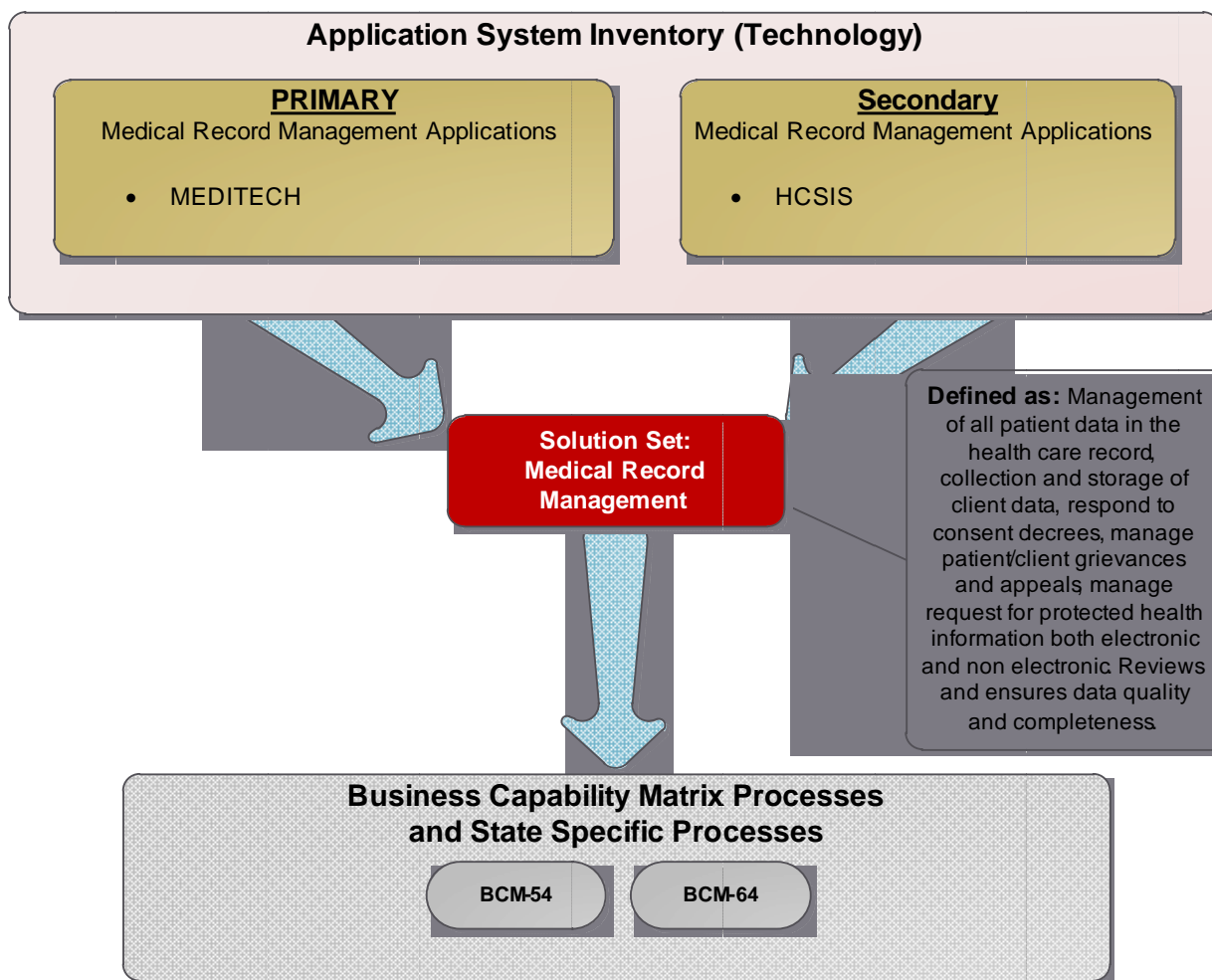
Application System Inventory – Field Definitions	
Column Name	Description of Column Contents
Application Short Name	The common or abbreviated application name.
Application Full Name	The full name of the application with description as appropriate.
App Type (COTS, Custom, Hybrid)	The application is primarily COTS, custom coded, or a hybrid.
X = Transaction Processing	An X indicates the system is used to record transactional information.
X = Information Access	An X indicates the system is used to communicate information, for example using lists or maps.
X = End-User/Group productivity	An X indicates the system is used as a collaboration or group coordination tool.
X = Browser Delivery	An X indicates the system uses web browsers as the primary user interface.
Operating System & Platform	The OS and platform for operating the system.
Database	The database technology used by the system.
Language	The implementation language used by the system.
Data (Pers/PHI/FIN)	The system manages Personal, Health or Financial information.

Application System Inventory – Field Definitions	
Column Name	Description of Column Contents
Access Via (Inter/Intra/VPN)	Access to the system is via the Internet, Intranet or externally via VPN.
Scope: Bureau, Dept/Agency, Secretariat, Commonwealth	The application's scope of use.
Year Installed	The year the system went live.
Number of IT Staff Assigned	The number of IT staff assigned, using fractional FTEs for part-time support.
Total Registered Users	The total number of end-users, indicating public access if appropriate.

The full Inventory of Applications/Technology can be seen in: Appendix B: Application System Inventories

2.6 Alignment and Modeling

During this step, the TCM team aligned the application and system inventory to the Solution Sets. Each application and systems relative contribution to the Solution Set was discussed and assessed to establish the Solution Set model for scoring as depicted below in the Medical Record Management example:

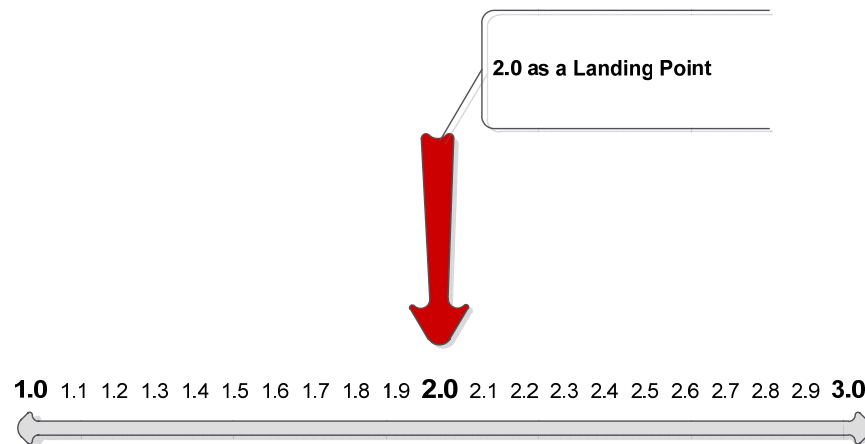


Prior to the TCM assessment and scoring session, the TCM team established initial weights to each of the applications and systems as to if they were primary, secondary, or not applicable to the Solution Set. (*The weighted Solution Sets can be seen in Appendix C: Weighted Solution Sets*). During the assessment and scoring sessions, these applications and systems were further analyzed with respect to their contribution to the Solution Set. This information influenced the Solution Set score by the relative weight based on aspect and ratio (e.g. supports more users, more transactional volume, demands more day-to-day user processing time.) For example, any one Solution Set might be comprised of several applications, but the largest or most widely used application(s) are given the most weight within the Solution Set. Therefore, their capabilities take precedent and more dramatically influence the TCM scoring assessment.

The full list of the system inventory to Solution Set alignment can be seen in: Appendix C: Weighted Solution Sets.

2.7 Assessment and Scoring

During this step the first week of October, 2011, the TCM team assessed and scored each Solution Set within the updated TCM. Scores were delineated with decimal points to capture useful rationale. During the TCM assessment and scoring session, maturity level 2.0 was typically used as a baseline, or “landing point”, unless a precedent had previously been established during the session for that aspect. If the 2.0 maturity level was determined not to be a good fit for the current environment then discussions focused respectfully to either the 1.0 and/or 3.0 definitions. Once the baseline maturity level (1.0, 2.0, or 3.0) was determined, the assessment discussions continued until consensus of the assigned score.



The TCM team initiated the assessment and scoring sessions by first reviewing the definition of the Solution Set (e.g. what business processes were included within this Solution Set), followed by reviewing and discussing the department specific applications and systems that support this Solution Set.

Once a baseline for the Solution Set was agreed upon, the TCM team processed the aspect and ratio conversations invoking the point system described below.

- Even decimal points (1.2, 1.4, 2.2, 2.4...) were awarded if the Solution Set was being pulled **up** and away from its baseline maturity level, by moving closer to a more advanced maturity level.
- Odd decimal points (1.1, 1.3, 2.1, 2.3...) were awarded if the Solution Set was being pulled **down** and away from its baseline maturity level, by moving closer to a lesser maturity level.

Through logical, structured and healthy discussion, the TCM team reached consensus on each score. The next section, Section 3.0, identifies the scores and provides averages for the Solution Sets, the TCM technical categories and the specific technical areas.

3.0 Technical Capability Analysis and Assessment

(1) B.0 Business Enabling Services

1. B.1 Forms Management
2. B.2 Workflow Management
3. B.3 Business Process Management (BPM)
4. B.4 Business Relationship Management (BRM)
5. B.5 Foreign Language Support

(2) B.6 Decision Support

6. B.6.1 Data Warehouse
7. B.6.2 Data Marts
8. B.6.3 Ad hoc Reporting
9. B.6.4 Data Mining
10. B.6.5 Statistical Analysis
11. B.6.6 Neural Network Tools

(3) A.0 Access Channels

12. A.1 Portal Access
13. A.2 Support for Access Devices
14. I.1.3 Orchestration and Composition
15. I.2 Standards-Based Data Exchange
16. I.3 Integration of Legacy Systems

(4) I.0 Interoperability

17. I.1.1 Service Structuring and Invocation
18. I.1.2 Enterprise Service Bus

(5) D.0 Data Management and Sharing

19. D.1 Data Exchange Across Multiple Organizations
20. D.2 Adoption of Data Standards

(6) P.0 Performance Measurement

21. P.1 Performance Data Collection and Reporting
22. P.2 Dashboard Generation

(7) S.0 Security and Privacy

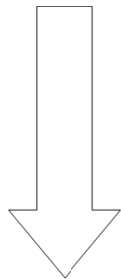
23. S.1 Authentication
24. S.2 Authentication Devices
25. S.3 Authorization and Access Control
26. S.4 Intrusion Detection
27. S.5 Logging and Auditing
28. S.6 Privacy

(8) F.0 Flexibility – Adaptability and Extensibility

29. F.1 Rules-Driven Processing
30. F.2 Extensibility
31. F.3 Automate Configuration and Reconfiguration Services
32. F.4 Introduction of New Technology

Least Detail

Subsequent pages of Section 3.0 organize the above eight (8) technical categories and their 32 technical area scores in order of *descending* level of detail and starting with (1) B.0 – Business Enabling Services.



Most Detail

Section 3.1: Depicts the eight (8) TCM Category Scores.

Section 3.2: Depicts the eight (8) TCM Category Scores plus, the 24 Solution Set score details.

Section 3.3 – 3.10: Depicts the eight (8) TCM Areas including the 32 Technical Area details, plus the 24 Solution Sets details.

3.1 TCM Scores: Technical Capability Matrix Summary

In summary, the assessment indicates that although the DDS technical landscape is functional, it is legacy and a candidate for improvement across the breadth of technical areas and functions. This is indicated by the average range of score from 1.0 to 1.5 on a scale of 1.0 to 5.0 as depicted in Figure 4.

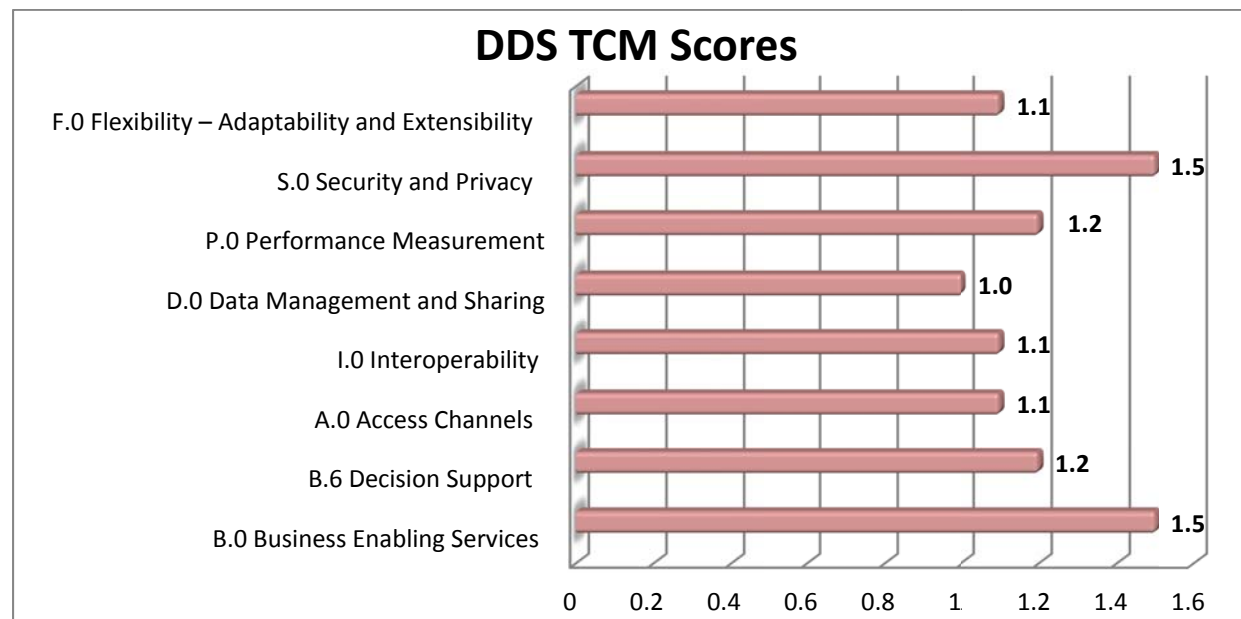


Figure 4: DDS TCM Average Scores by Technical Area (scale = 1.0 – 5.0)

3.2 TCM Scores: Technical Capability Matrix Summary and Solution Set Detail

Technical Capability Matrix	Technical Area Averages	Eligibility	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Provider Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Program Management	Establish and Manage Business Relationships	Infrastructure Support and IT	Executive Support
B.0 Business Enabling Services	1.5	1.0	1.9	1.9	1.0	1.9	1.2	1.1	1.9	2.1	1.0	1.4	2.0	2.0	1.8	1.8	1.1	1.0	1.4	1.0	1.0	1.0
B.6 Decision Support	1.2	1.0	1.3	1.3	1.0	1.3	1.3	1.0	1.3	1.3	1.0	1.3	1.3	1.3	1.3	1.3	1.3	1.0	1.1	1.0	1.0	1.3
A.0 Access Channels	1.1	1.0	1.3	1.3	1.0	1.0	1.3	1.0	1.3	1.5	1.0	1.0	1.5	1.5	1.0	1.2	1.0	1.0	1.1	1.0	1.0	1.0
I.0 Interoperability	1.1	1.2	1.0	1.4	1.0	1.0	1.0	1.0	1.4	1.4	1.0	1.0	1.2	1.2	1.2	1.2	1.2	1.0	1.0	1.0	1.0	1.0
D.0 Data Management and Sharing	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
P.0 Performance Measurement	1.2	1.0	1.1	1.1	1.0	1.0	1.0	1.0	1.5	1.8	1.0	1.0	1.1	1.1	2.0	2.0	1.6	1.0	1.4	1.0	1.0	1.0
S.0 Security and Privacy	1.5	1.5	1.9	1.9	1.0	1.9	1.9	1.3	1.9	1.8	1.0	1.5	1.8	1.8	1.7	1.7	1.7	1.0	1.5	1.0	1.0	1.5
F.0 Flexibility – Adaptability and Extensibility	1.1	1.0	1.2	1.2	1.0	1.2	1.2	1.0	1.2	1.1	1.0	1.0	1.0	1.0	1.0	1.1	1.0	1.0	1.2	1.0	1.0	1.0
Solution Set Average	1.2	1.1	1.3	1.4	1.0	1.3	1.2	1.1	1.4	1.5	1.0	1.2	1.4	1.4	1.4	1.4	1.2	1.0	1.2	1.0	1.0	1.1

*Solution Sets: Service Determination; Order Entry Laboratory, and Pharmacy; Provider Performance Management were deemed not applicable to the DDS environment and are not shown.

3.3 TCM Scores: Business Enabling Services Details (B.0)																						
Technical Capability Matrix	Averages	Eligibility	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Provider Quality Management	Provider and Contractor Management and Procurement	Program Management	Manage Policy and Goals	Establish and Manage Business Relationships	Infrastructure Support and IT	Executive Support
Business Enabling Services Average	1.5	1.0	1.9	1.9	1.0	1.9	1.2	1.1	1.9	2.1	1.0	1.4	2.0	2.0	1.8	1.8	1.1	1.4	1.0	1.0	1.0	1.0
B.1 Forms Management	1.8	1.0	2.2	2.2	1.0	2.2	2.2	1.4	2.2	2.4	1.0	2.0	3.0	3.0	2.0	2.0	1.7	1.2	1.0	1.0	1.0	1.0
	Electronic Forms are prevalent across the Solution Sets substantiating the baseline score of 2.0. MEDITECH supports a level of efficiency in data collection and merging known data and the HCSIS application even more so. The resulting score for those associated Solution Sets warranted movement towards the 3.0 score. The remaining Solution Sets include manual forms, thus reducing them from the 2.0 standard.																					
B.2 Workflow Management	1.6	1.0	2.4	2.4	1.0	2.4	1.0	1.0	2.4	2.6	1.0	2.2	2.0	2.0	2.0	2.0	1.0	1.7	1.0	1.0	1.0	1.0
	Level 2.0 workflow management is supported across the Solution Sets where MEDITECH is the primary application. This includes electronic routing of information to business processes and designated roles. HCSIS incorporates advanced workflow where information is routed based on logic nearing the 3.0 score. Several Solution Sets are supported by manual workflow, thus reducing them from the 2.0 baseline.																					
B.3 Business Process Management (BPM)	1.6	1.0	2.4	2.4	1.0	2.4	1.0	1.0	2.4	2.4	1.0	1.0	2.0	2.0	2.0	2.0	1.0	1.5	1.0	1.0	1.0	1.0
	Business process management is not formalized across the DDS environment (1.0); however HCSIS provides strong 2.0+ capabilities in this area across several Solution Sets. In other cases, business process is planned and executed to a degree, thus a 2.0 score was set.																					
B.4 Business Relationship Management (BRM)	1.4	1.0	1.7	1.7	1.0	1.7	1.0	1.0	1.7	2.0	1.0	1.0	2.0	2.0	2.0	2.0	1.0	1.5	1.0	1.0	1.0	1.0
	Business relationship management is not formalized in the DDS environment; however HCSIS provides strong capabilities in this area across several Solution Sets to meet the 2.0 requirement. In other cases, the BRM is planned and executed to a degree to meet the 2.0 requirement.																					
B.5 Foreign Language Support	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Foreign language is not supported across the Solution Sets outside of some Microsoft Word templates.																					

3.4 TCM Scores: Decision Support Details (B.6)

Technical Capability Matrix	Averages	Eligibility	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Provider Quality Management	Provider and Contractor Management and Procurement	Program Management	Manage Policy and Goals	Establish and Manage Business Relationships	Infrastructure Support and IT	Executive Support
Decision Support Average	1.2	1.0	1.3	1.3	1.0	1.3	1.3	1.0	1.3	1.3	1.0	1.3	1.3	1.3	1.3	1.3	1.3	1.1	1.0	1.0	1.0	1.3
B.6.1 Data Warehouse	1.7	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	1.3	1.0	1.0	1.0	2.0
	Data Warehouse support is prevalent across the Solution Sets, especially where the MEDITECH application is a key contributor. Standardized data definitions exist with associated ETL (extract, transfer, and load) methods. Several Solution Sets are not supported in the DDS DW architecture, thus reducing them to the 1.0 score.																					
B.6.2 Data Marts	1.7	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	1.1	1.0	1.0	1.0	2.0
	Data Mart support is matched directly with the data warehouse support. These capabilities are also prevalent across the Solution Sets, especially where MEDITECH is a key contributor. Several Solution Sets are not supported, thus reducing them from the 2.0 score.																					
B.6.3 Ad Hoc Reporting	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Ad Hoc Reporting is primarily supported by coded procedures, not COTS tools, as indicated by the 1.0 score.																					
B.6.4 Data Mining	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	COTS tools do not exist to support data mining.																					
B.6.5 Statistical Analysis	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	COTS tools do not exist to support Statistical Analysis.																					
B.6.6 Neural Network Tools	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Neural Network capabilities do not exist.																					

3.5 TCM Scores: Access Channels Details (A.0)

Technical Capability Matrix	Averages	Eligibility	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Provider Quality Management	Provider and Contractor Management and Procurement	Program Management	Manage Policy and Goals	Establish and Manage Business Relationships	Infrastructure Support and IT	Executive Support
Access Channel Average	1.1	1.0	1.3	1.3	1.0	1.0	1.3	1.0	1.3	1.5	1.0	1.0	1.5	1.5	1.0	1.2	1.0	1.1	1.0	1.0	1.0	1.0
A.1 Portal Access	1.3	1.0	1.6	1.6	1.0	1.0	1.6	1.0	1.6	2.0	1.0	1.0	2.0	2.0	1.0	1.4	1.0	1.2	1.0	1.0	1.0	1.0
	The HCSIS virtual gateway provides portal access to several Solution Sets as indicated by the range 1.n - 2.0 scores.																					
A.2 Support for Access Devices	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	DDS Solution Sets do not extend to public facing or advanced access devices such as kiosks, voice response systems, or mobile phones.																					

3.6 TCM Scores: Interoperability Details (I.0)

Technical Capability Matrix	Averages	Eligibility	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Provider Quality Management	Provider and Contractor Management and Procurement	Program Management	Manage Policy and Goals	Establish and Manage Business Relationships	Infrastructure Support and IT	Executive Support
Interoperability Average	1.1	1.2	1.0	1.4	1.0	1.0	1.0	1.0	1.4	1.4	1.0	1.0	1.2	1.2	1.2	1.2	1.2	1.0	1.0	1.0	1.0	1.0
I.1.1 Service Structuring and Invocation	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
DDS Solution Sets are not service oriented in architecture.																						
I.1.2 Enterprise Service Bus	1.2	1.0	1.0	2.0	1.0	1.0	1.0	1.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	1.1	1.0	1.0	1.0	1.0
The PAM application utilizes data delivered by the ESB and provides reliable messaging and guaranteed message delivery across four (4) of the Solution Sets.																						
I.1.3 Orchestration and Composition	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
DDS has not standardized orchestration and composition of functions across the enterprise.																						
I.2 Standards-Based Data Exchange	1.4	2.0	1.0	2.0	1.0	1.0	1.0	1.0	2.0	2.0	1.0	1.0	2.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0
Structured formats for data exchange (score of 2.0) are optimized for the DDS current enterprise state.																						
I.3 Integration of Legacy Systems	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
No service oriented approach for legacy system integration, however not much need was cited for the current environment.																						

3.7 TCM Scores: Data Management and Sharing Details (D.0)

Technical Capability Matrix	Averages	Eligibility	Enrollment/Registration, Intake, and Discharge Service	Coordination/Tracking and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Provider Quality Management	Provider and Contractor Management and Procurement	Program Management	Manage Policy and Goals	Establish and Manage Business Relationships	Infrastructure Support and IT	Executive Support
Data Management and Sharing Average	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
D.1 Data Exchange Across Multiple Organizations	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Service and claims information is exchanged based on industry accepted practice. The remainder of data requests are nonstandard formats and in various media (e.g., telephone, paper, fax, e-mail.)																					
D.2 Adoption of Data Standards	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	No use of enterprise-wide data standards.																					

3.8 TCM Scores: Performance Measurement Details (P.0)																						
Technical Capability Matrix	Averages	Eligibility	Enrollment/Registration, Intake, and Discharge Service	Coordination/Tracking and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Provider Quality Management	Provider and Contractor Management and Procurement	Program Management	Manage Policy and Goals	Establish and Manage Business Relationships	Infrastructure Support and IT	Executive Support
Performance Measurement Average	1.2	1.0	1.1	1.1	1.0	1.0	1.0	1.0	1.5	1.8	1.0	1.0	1.1	1.1	2.0	2.0	1.6	1.4	1.0	1.0	1.0	1.0
P.1 Performance Data Collection and Reporting	1.3	1.0	1.2	1.2	1.0	1.0	1.0	1.0	1.6	2.0	1.0	1.0	1.2	1.2	2.0	2.0	1.6	1.3	1.0	1.0	1.0	1.0
A 2.0 baseline is achieved in several Solution Sets through defined performance metrics and reporting capability within the PAM application.																						
P.2 Dashboard Generation	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.4	1.6	1.0	1.0	1.0	1.0	2.0	2.0	1.6	1.4	1.0	1.0	1.0	1.0
A variety of metrics are assembled in dashboards via the HCSIS application providing for the movement towards the 2.0 score. The PAM module of HCIS takes dashboard reporting to a finer level of detail.																						

3.9 TCM Scores: Security and Privacy Details (S.0)

Technical Capability Matrix	Averages	Eligibility	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Provider Quality Management	Provider and Contractor Management and Procurement	Program Management	Manage Policy and Goals	Establish and Manage Business Relationships	Infrastructure Support and IT	Executive Support
Security and Privacy Average	1.5	1.5	1.9	1.9	1.0	1.9	1.9	1.3	1.9	1.8	1.0	1.5	1.8	1.8	1.7	1.7	1.7	1.5	1.0	1.0	1.0	1.5
S.1 Authentication	1.8	2.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	1.7	1.0	1.0	1.0	2.0
With the exception of the 1.0 manual based Solution Sets, user access is managed via logon ID and password and supports industry best-practices such as requiring users to periodically change their password and mandatory characters sets.																						
S.2 Authentication Devices	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Overall, DDS Solution Sets are not single sign-on and do not support advanced authentication. The primary enterprise applications require additional login after initial network login and authentication.																						
S.3 Authorization and Access Control	1.8	2.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0	1.0	2.0
With the exception of the 1.0 manual based Solution Sets, user access to system resources is controlled depending on their role at sign-on.																						
S.4 Intrusion Detection	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
DDS does not have defined and documented methods for monitoring abnormal activities.																						
S.5 Logging and Auditing	1.9	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	2.0	1.0	1.0	3.0	3.0	2.0	2.4	2.0	1.6	1.0	1.0	1.0	1.0
MEDITECH and HCSIS elevate several Solution Sets towards the 3.0 score as they provide access to the history of a user's activities and other management functions with support for the auditing of record level transactions. The remainder of Solution Set applications provide some auditing capabilities (2.0) while the manual based Solution Sets are limited to manual logging and analysis (1.0).																						
S.6 Privacy	1.8	2.0	2.2	2.2	1.0	2.2	2.2	1.0	2.2	2.6	1.0	2.0	2.0	2.0	2.0	2.0	2.0	1.7	1.0	1.0	1.0	2.0
Access restriction to functionality based on defined access roles is supported to some degree by the majority of solution sets. Through the use of Oracle, SQL and in- house applications, several solution sets extend capabilities by restricting access to data elements based on defined access roles. The remainder of the solution set applications do not meet full 2.0 requirements because functionality cannot be constrained by role.																						

3.10 TCM Scores: Flexibility – Adaptability and Extensibility Details (F.0)																						
Technical Capability Matrix	Averages	Eligibility	Enrollment/Registration, Intake, and Discharge Service	Coordination/Tracking and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Provider Quality Management	Provider and Contractor Management and Procurement	Program Management	Manage Policy and Goals	Establish and Manage Business Relationships	Infrastructure Support and IT	Executive Support
Flexibility – Adaptability and Extensibility Average	1.1	1.0	1.2	1.2	1.0	1.2	1.2	1.0	1.2	1.1	1.0	1.0	1.0	1.0	1.0	1.1	1.0	1.2	1.0	1.0	1.0	1.0
F.1 Rules-Driven Processing	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.0	1.0	1.0	1.0
Rules-driven processing does not exist within any Solution Set.																						
F.2 Extensibility	1.1	1.0	1.2	1.2	1.0	1.2	1.2	1.0	1.2	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.3	1.0	1.0	1.0	1.0
Outside of the HCSIS application, extensions to all Solution Sets require pervasive coding changes. HCSIS is architected to support system modules/extensions.																						
F.3 Automate Configuration and Reconfiguration Services	1.2	1.0	1.7	1.7	1.0	1.7	1.7	1.0	1.7	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.0	1.1	1.0	1.0	1.0	1.0
MEDITECH based Solution Sets provide configuration capability within application modules (e.g. ability to configure data entry forms, etc.) to meet the 2.0 requirement.																						
F.4 Introduction of New Technology	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.0	1.0	1.0	1.0
DDS Solution Sets are not service oriented in design and do not provide for “plug and play” components, thus any new technology can only be introduced through technology-dependent interfaces.																						

4.0 Recommendations

The primary technology within DDS is over ten years old and is not service oriented in architecture. This non-service oriented environment indicates the need for systemic replacement in order to optimize current, market available technologies and solutions. This approach will enable the enterprise to establish a technology platform that can take advantage of rapidly evolving technologies and solutions as they become available. It is recommended that DDS:

- **Continue to develop a culture that maintains the TCM in order to make improvements to the technical environment.** We recommend continuing to utilize the TCM framework to inform planning efforts to systems and business processes periodically (at minimum annually.) This periodic to-be analysis should be used to identify critical areas of improvement. By following this guidance, DDS can maintain an effective, consistent framework and methodology for technical improvements.
- **Complete the to-be MITA TCM analysis.** Progressing from one maturity level to the next will come through careful planning and structured projects and initiatives. While these projects enable a higher maturity level it may be impractical to mature every business process and technical area. DDS should leverage the CMS required to-be analysis to help determine the priority business processes and technical areas that would have the greatest potential to affect desired outcomes such as program effectiveness, healthcare quality, and administrative efficiency.
- **Review the low scoring systems in this current as-is analysis.** Proactively planning to replace and/or improve weak technical areas in the current environment will foster confidence in this overall MITA process, continue to build upon the TCM culture and act as a spring board towards the desired future state environment. Some of these initial modifications may be done quickly and with little investment. For example, several areas of the TCM scored poorly because of the lack of procedures, standards, or consistent organizational structure. Discussing options of improving these documented procedures, standard and organizational structures should be considered.
- **Create requirements for the future technical environment.** We recommend using this document as guidance and a framework to create requirements for the future technical environment “to-be” state. This approach ensures the established alignment is maintained and gaps between the current state and future state can be objectively addressed.
- **Conduct a Request for Information (RFI) to inform DDS on the available market solutions and to help shape the future Request for Responses (RFR).** Understanding the market solutions in the context of the TCM and this report will assist the DDS procurement effort.

With respect to the DDS technology operating model, the DDS members of the TCM team are extremely capable, collaborative, experienced and knowledgeable of both the business and technical environments relative to DDS and the Commonwealth HHS enterprise. The other participating departments, BoPHF and DMH, while unique, do share similar characteristics including their technical environments. This appears promising as it may be valuable to share planning and technology assets, services and resources on this path to the future.

Appendix A: Technical Capability Matrix Template

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
B.0 Business Enabling Services						
B.1 Forms Management	MM Level 2, O4, G6	Manual data entry on hardcopy forms	Online data entry on electronic forms	Partially automated processes that merge known data into the forms and requires minimal electronic data entry		
B.2 Workflow Management	O4, G4, G6	Manual routing of hardcopy files to individuals involved in processing	Electronic routing of files to business processes and individuals involved in processing Responsible for processing completion and other individual and business processes	Intelligent routing of files and/or electronic forms dependent on a complex rule set that can route based on criteria such as role, priority, content sensitivity, and prior history		
B.3 Business Process Management (BPM)	G4	Manual, by user (core services and accompany valued defined, infrastructure in place)	Processes are planned and executed in accordance with policy and are monitored, controlled, and reviewed	Specification and management of business processes in conformance with MITA BPM standards (e.g., Business Process Execution Language [BPEL])		
B.4 Business Relationship Management (BRM)	O4	Manual (e.g., by attaching annotations to case files)	BRM requirements are managed by individual applications and these BRM processes are planned, performed, measured, and controlled	Basic BRM, including tracking relationships between Medicaid system users (e.g., beneficiaries and providers) and the services they have requested and received	Advanced BRM, which includes basic BRM plus analytics support and personalization capabilities	

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
B.5 Foreign Language Support	1. Manage Applicant and Member Communication, Level 3 2. O4	Manual translation of messages into supported foreign languages	Partial foreign language support for real-time and offline interaction	Foreign language translation support for real-time and offline interaction with beneficiaries in designated languages		
B.6 Decision Support						
B.6.1 Data Warehouse	G5, O7	Data environment for reporting is created from OLTP databases and operational reporting is supported	Extracting, transforming, and loading data from multiple databases into a data warehouse using standardized data definitions.	Extracting, transforming, and loading data from multiple databases into a data warehouse that conforms with the MITA Logical Data Model		
B.6.2 Data Marts	G5, O7	Data environment for reporting is created from OLTP databases and operational reporting is supported	Extracting, transforming, and loading data from multiple databases into data marts	Importing data into data marts that conform with the MITA Logical Data Model		
B.6.3 Ad hoc Reporting	MG2 Level 2	Ad hoc reporting, typically using coded procedures	Ad hoc reporting against databases using COTS tools	Ad hoc reporting using COTS tools that allows system users to automate the running, sharing, and storing of ad hoc reports		
B.6.4 Data Mining	MG2 Level 2	Data mining to detect patterns in large volumes of data, typically using coded procedures	Data mining to detect patterns in large volumes of data using COTS tools	Partially automated data mining in which the system finds patterns using COTS tools and alerts system users for further analysis		

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
B.6.5 Statistical Analysis	MG2 Level 2	Statistical analyses (e.g., regression analysis), typically using coded procedures	Statistical analyses of designated data (e.g., regression analysis) using COTS tools	Partially automated statistical analysis in which the system finds patterns using COTS tools and alerts system users for further analysis		
B.6.6 Neural Network Tools	MG2 Level 2	None	Analyses using neural network (e.g., learning)	System automatically predicts and alerts system users, for their intervention, of patterns, relationships, and non-linear data models		
A.0 Access Channels						
A.1 Portal Access	1. O4 2. MM Level 2 3. Enroll Provider, Level 2 4. Manage Applicant and Member Communications, Level 2	Beneficiary and provider access to appropriate Medicaid business functions via manual or alphanumeric devices	Beneficiary and provider access to appropriate Medicaid business functions via portal with single online access point	Beneficiary and provider access to appropriate Medicaid business functions via portal with single online access point		
A.2 Support for Access Devices	1. O4 2. MM Level 2 3. Enroll Provider, Level 2 4. Manage Applicant and Member Communications, Level 2	Beneficiary and provider access to services via manual submission, alphanumeric ("green screen") devices, or EDI	Beneficiary and provider access to services via browser, kiosk, voice response system, or mobile phone	Beneficiary and provider access to services online via PDA		
I.0 Interoperability						
I.1.1 Service Structuring and Invocation	G4, O2, O5	Nonstandardized definition and invocation of services	Service support using architecture that does not comply with published MITA service interfaces and interface standards	Services support using architecture that complies with published MITA interfaces and interface standards	Services support using a cross-enterprise services registry (to be verified)	

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
I.1.2 Enterprise Service Bus	G4, O2, O5	None or nonstandardized application integration	Reliable messaging, including guaranteed message delivery (without duplicates) and support for nondeliverable	MITA-compliant ESB	MITA-compliant ESB interoperable outside of a State Medicaid agency	
I.1.3 Orchestration and Composition	G4, O2, O5	Nonstandardized approaches to orchestration and composition of functions within and across the Medicaid Management Information System (MMIS)	Standardized approaches to orchestration and composition of functions within and across the MMIS	MITA-standard approach to orchestrating and composing services		
I.2 Standards-Based Data Exchange	G3	Ad hoc formats for data exchange	Structured formats for data exchange	Data exchange (internally and externally) using MITA standards		Data exchange (internally and externally) in conformance with MITA-defined semantic data standards (ontology-based)
1.3 Integration of Legacy Systems		Ad hoc, point-to-point approaches to systems integration	Structured, point-to-point and/or service enabled approaches to systems integration	Service-enabling legacy systems using MITA-standard service interfaces		
D.0 Data Management and Sharing						

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
D.1 Data Exchange Across Multiple Organizations	G5, G6	Manual data exchange between multiple organizations, sending data requests via telephone or e-mail to data processing organizations and receiving requested data in nonstandard formats and in various media (e.g., paper)	Electronic data exchange with multiple organizations via a MITA information hub using secure data, in which the location and format are transparent to the user and the results are delivered in a defined style that meets the user's needs	Electronic data exchange with multiple organizations via a MITA information hub that can perform advanced information monitoring and route alerts/alarms to communities of interest if the system detects unusual conditions		
D.2 Adoption of Data Standards	G3, O3	No use of enterprise-wide data standards	Data model that conforms to the MITA model and maps data exchanged with external organizations to this model	Data model that conforms all shared data used by a State Medicaid agency's business processes to the MITA model	Data model that conforms all shared data used by a State Medicaid agency's business processes to the MITA model and includes standards for clinical data and electronic health records	Data model that conforms all shared data used by a State Medicaid agency's business processes to the MITA model and that includes national standards for clinical data and electronic health records and other public health and national standards
P.0 Performance Measurement						
P.1 Performance Data Collection and Reporting	G2	Manual processes used, few predefined methods, requires extensive user intervention	Collect and report using predefined and ad hoc reporting methods and currently defined performance metrics	Define, implement, collect, and report using a set of business process-related performance metrics that conform to MITA-defined performance metrics	Generate alerts and alarms when the value of a metric falls outside limits	

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
P.2 Dashboard Generation	G2	Manual processes used, few predefined methods, requires extensive user intervention	Generate and display summary-level performance information (i.e., performance dashboards)	Generate and display summary-level performance information (i.e., performance dashboards) within a State Medicaid agency for all MITA-defined metrics		Generate and display summary-level performance information (i.e., performance dashboards) from external sources (e.g., other states and agencies) within a State Medicaid agency for all MITA-defined metrics
S.0 Security and Privacy						
S.1 Authentication	MM	Access to MMIS system capabilities via logon ID and password	Access to MMIS system capabilities via logon ID and password supporting industry best-practices such as requiring users to periodically change their password, mandatory characters sets, etc	User authentication using public key infrastructure in conformance with MITA-identified standards		
S.2 Authentication Devices		Authentication by entering logon ID and password	Authentication by entering logon ID and password - supporting single sign-on	Support for user authentication via kiosks based on fingerprints and delivery of results to authentication and authorization functions	Support for user authentication via SecureID tokens and delivery of results to authentication and authorization functions	Support for user authentication via kiosks based on retinal scans and delivery of results to authentication and authorization functions
S.3 Authorization and Access Control		Access to system resources are not consistently based upon user role	User access to system resources depending on their role at sign-on	User access to system resources based upon application and application level data elements based on defined access roles		

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
S.4 Intrusion Detection		Users manually monitor for abnormal activities without a defined method	Users manually monitor for abnormal activities using defined and documented methods	The system monitors for abnormal activity and alerts users for their manual intervention		
S.5 Logging and Auditing		Manual logging and analysis	Access to the history of a user's activities and other management functions, including logon approvals and disapprovals and log search and playback	Access to the history of a user's activities and other management functions with support for the auditing of record level transactions		
S.6 Privacy		Procedural controls to ensure privacy of information	Access restriction to functionality based on defined access roles	Access restriction to data elements based on defined access roles		
F.0 Flexibility – Adaptability and Extensibility						
F.1 Rules-Driven Processing	1. Determine Eligibility, Level 3 2. G4	Manual application of rules (and consequent inconsistent decision making)	Define sets of rules based on existing business processes and evidence based practices	Linking a defined set of rules into business processes or using applications executed with a Basic Rules Management System (often called a Rules Engine)		
F.2 Extensibility	G4	Extensions to system functionality that require pervasive coding changes	Update/extensions to system modules are managed and are planned, performed, measured, and controlled	Services with points at which to add extensions to existing functionality (changes highly localized)		

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
F.3 Automate Configuration and Reconfiguration Services	G4	Configuration and reconfiguration of distributed application that typically requires extensive hard-coded changes across many software components and/or applications across the enterprise (and with significant disruption)	Configuration and reconfiguration of distributed applications that use modular components within applications across the enterprise and with moderate disruption	Configuration and reconfiguration of distributed applications using services that require minimal hard-coded changes and with moderate disruption	Consistent distributed applications using common business change processes that coordinate between active components and ensure minimal disruption	Consistent distributed applications using common business change processes that coordinate between active components and ensure minimal disruption
F.4 Introduction of New Technology	O2, O5	Technology-dependent interfaces to applications that can be significantly affected by the introduction of new technology	Technology-dependent interfaces to applications that can be affected by the introduction of new technology, but that can easily be modified	Technology-neutral interfaces that localize and minimize the impact of the introduction of new technology (e.g., data abstraction in data management services to provide product-neutral access to data based on metadata definitions)		

Appendix B: Application System Inventories

Application System Inventory - Field Definitions

Column Name	Description of Column Contents
Application Full Name	The full name of the application with description as appropriate.
App Type (COTS, Custom, Hybrid)	The application is primarily COTS, custom coded, or a hybrid.
X = Transaction Processing	An X indicates the system is used to record transactional information.
X = Information Access	An X indicates the system is used to communicate information, for example using lists or maps.
X = End-User / Group productivity	An X indicates the system is used as a collaboration or group coordination tool.
X = Browser Delivery	An X indicates the system uses web browsers as the primary user interface.
Operating System & Platform	The OS and platform for operating the system.
Database	The database technology used by the system.
Language	The implementation language used by the system.
Data (Pers/PHI/FIN)	The system manages Personal, Health or Financial information.
Access Via (Inter/Intra/VPN)	Access to the system is via the Internet, Intranet or externally via VPN.
Scope (Bureau, Dept/Agency, Secretariat, Commonwealth)	The application's scope of use.
Year Installed	The year the system went live.
Number of IT Staff Assigned	The number of IT staff assigned, using fractional FTEs for part-time support.
Total Registered Users	The total number of end-users, indicating public access if appropriate.

Application Short Name	Application Full Name	App Type (COTS, Custom, Hybrid)	X = Transaction Processing	X = Information Access	X = End-User / Group productivity	X = Browser Delivery	System Architecture = 2 Tier or 3 Tier	Operating System & Platform	Database	Language	Data (Pers /PHI/ FIN)	Access Via (Inter/ Intra/ VPN)	Scope (Bureau, Dept/Agency, Secretariat, Commonwealth)	Year Installed	Number of IT Staff Assigned	Total Registered Users	Systems Interfaced to
MEDITECH		COTS, Custom	x	x			2	Win 2k	SQL 2k	Magic	Pers/ePH I	VPN	Dept	2003	6	2,100	NewMMIS
HCSIS		COTS, Custom	x	x		x	3	Win 2003	Oracle 11 g / Linux	.NET, Java, COM	Pers/ePH I	VPN	Dept	2006	8	2,100	Meditech
PAM		COTS, Custom	X	X		X	3	Win 2003	Oracle 11 g / Linux	.NET, Java, COM	FIN	VPN	Dept	2011	12		EIM / PPL
ICMS		Custom	x	x			3	Win 2003	SQL 2005	.Net	Fin	VPN	Dept	2008	2	30	Meditech/MMARS
IPS		Custom	x	x			3	Win 2003	SQL 2005	.Net	Pers/ePH I	VPN	Dept	2006	2	50	Meditech/ HCSIS
Autism		Custom	x	x			2	Win XP	SQL 2k	Access, VBA	Pers/ePH I	VPN	Dept	2008	1	10	
Application Security		Custom	x	x			2	Win XP	SQL 2k	SQL	Pers	VPN	Dept	2006	1	450	
HL7 (WaiverBillin g)		Custom	x	x			2	Win XP	SQL 2k	VB.NET	Pers/ePH I	VPN	Dept	2005	1	6	Meditech/EIM/PP L
QE5		Custom	x	x		x	3	Win 2003	SQL 2005	.NET	Pers/ePH I	VPN	Dept	2011	2	65	Meditech/HCSIS
Client Funds		Custom	x	x			2	Win XP	SQL 2k	Access, VBA	Pers/ePH I	VPN	Dept	1999	1	25	Meditech
Waiver Sorting		Custom		x			2	Win XP	SQL 2k	Access, VBA	Pers/ePH I	VPN	Dept	2008	1	10	
MTRreporting		Custom		x			2	Win XP	SQL 2k	Access, VBA	Pers/ePH I	VPN	Dept	2005	1	450	Meditech
FFP-Time		Custom	x	x		x	3	Win 2003	SQL 2k	ASP, COM	Pers	VPN	Dept	2004	1	35	MMARS

Appendix C: Weighted Solution Sets

		Solution Sets																				
Application Short Name	Application Full Name	Eligibility	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking and Communication and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Program Management	Manage Policy and Goals	Establish and Manage Business Relationships with Medicaid	Infrastructure Support and IT	Executive Support
MEDITECH		n	a	a	n	a	a	b	a	n	n	n	a	n	b	b	n	a	n	n	n	b
HCSIS		n	b	a	n	b	b	b	n	n	n	n	a	a	n	b	n	b	n	n	n	b
PAM		n	n	b	n	n	n	n	a	a	n	n	n	n	n	n	b	b	n	n	n	n
ICMS		n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	a	n	n	n	n	a
IPS		n	n	n	n	n	n	n	n	n	n	n	a	b	n	n	n	n	n	n	n	b
IMPACT		n	n	n	n	n	n	n	b	n	n	n	n	n	n	n	b	n	n	n	n	a
Autism		n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	a
Application Security		n	n	n	n	n	n	b	n	n	n	n	n	n	n	n	n	n	n	n	n	n
HL7 (WaiverBilling)		n	n	n	n	n	n	n	b	n	n	n	n	n	n	n	n	n	n	n	n	n
QE5		n	n	n	n	n	n	n	n	n	n	n	n	n	a	a	a	n	n	n	n	a
Client Funds		n	n	n	n	n	n	n	n	n	n	a	n	n	n	n	n	n	n	n	n	b
	Solution Set Support, e.g. Reporting and Interfaces																					
MTRreporting																		n				
FFP-Time																		n				b
	Non-DDS Systems																					
EIM		n	n	n	n	n	n	n	b	a	n	n	n	n	n	n	a	n	n	n	n	b

Commonwealth of Massachusetts
Executive Office of Health and Human Services
Next Generation System Planning Project

Department of Mental Health (DMH)
Technical Capability Matrix
Deliverable 7B

(Based on MITA SSA-Version 2.0)

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Erin Ferrari, Project Manager
The Commonwealth of Massachusetts
Executive Office of Health and Human Services
One Ashburton Place, 11th Floor
Boston, MA 02108
erin.ferrari@state.ma.us

Charlie Leadbetter, Project Principal/Project Manager
BerryDunn
100 Middle Street, PO Box 1100
Portland, ME 04104-1100
cleadbetter@berrydunn.com



Technical Capability Matrix (TCM)

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Executive Summary

This Technical Capability Matrix (TCM) report is intended to serve The Commonwealth of Massachusetts Executive Office of Health and Human Services (EOHHS) and its Agencies to define the current state of their technical environment and to formalize the desired future state of their technical environment. As the Department of Mental Health (DMH) strives to improve their technical environment in support of their day-to-day business, it is imperative that the current environment is objectively understood and documented. This report informs DMH leadership with a level of detail necessary to support effective planning for an optimized future state. As a source document, this report is a key artifact in the planning and creation of the RFI and subsequent RFR(s), leading to the implementation of a comprehensive MITA-compliant solution.

The Centers for Medicare & Medicaid Services (CMS), through its Medicaid Information Technology Architecture (MITA), provides a framework and guidance for states to assess capabilities and maturity across business, information and technical architectures. Specifically, the Technical Capability Matrix (TCM) within MITA is intended to assist states in the assessment of their levels of technical capability and maturity. The TCM provides a mechanism that allows a state to systematically mature the enterprise to keep up with the constantly changing world of technology.

The TCM team comprised of BerryDunn, the Commonwealth and DMH has successfully collaborated and completed the TCM assessment. As a guiding principle for this activity, the TCM team orchestrated the technical assessment from a business perspective, whereby the business process/architecture provided the baseline to drive the technical architecture, thus preserving the concept that technical capabilities are enablers of business processes.

The assessment indicates that although the DMH technical landscape is functional, it is primarily a legacy environment and is a candidate for improvement. This is indicated by the average range of score from 1.0 to 1.6 on a scale of 1.0 to 5.0 as depicted below in Figure 1.

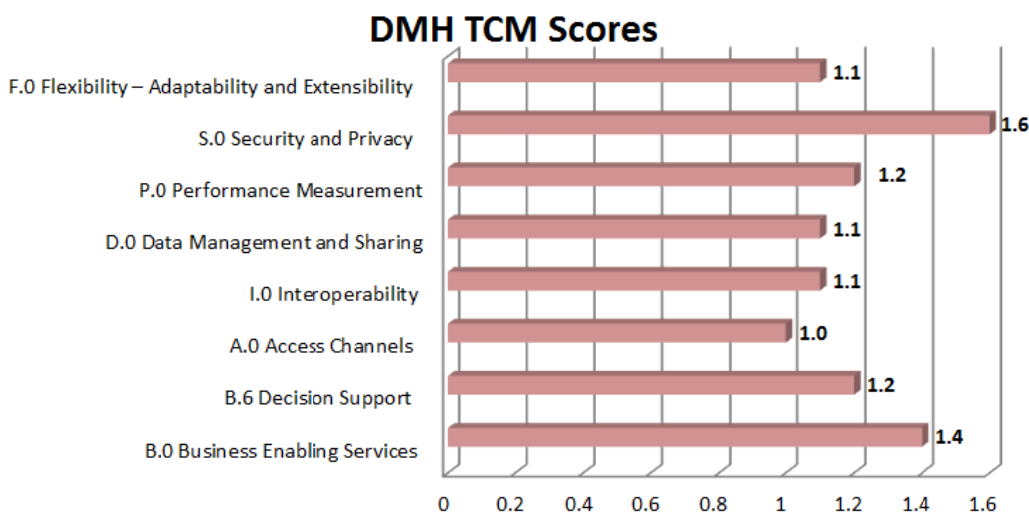


Figure 1: DMH TCM Average Scores by Technical Area (Scale = 1.0 – 5.0)

At the core of DMH's technology environment is the Mental Health Information System (MHIS). MHIS is a customized Commercial-off-the-Shelf (COTS) product from MEDITECH that was implemented in 2000. Although MHIS is modular in design, it does not meet generally accepted Service Oriented Architecture (SOA) principles. The DMH technical environment also incorporates the DMH Data Warehouse and several DMH-developed applications and databases. Furthermore, DMH's technical environment receives support via a large variety of user maintained Microsoft Excel spreadsheets and Microsoft Access databases that are not typically considered enterprise standard.

The TCM team created and aligned technical "Solution Sets" based on the MITA and state specific business processes. The Solution Sets were assembled based on the DMH supporting applications and systems and assessed in accordance with the TCM definitions of technical maturity. This approach produced a valuable, contextual alignment of business and technology, and will enable DMH to maintain this alignment across targeted business and technical improvements as it moves forward in its improvement endeavors.

With respect to the TCM categories and technical areas, there are several key themes that were derived from the assessment. Of note, there are technical areas that are fundamentally addressed well including Security and Privacy and Business Enabling Services. The Security and Privacy category averaged the highest score among the eight (8) TCM measures with a score of 1.6. The security and privacy methods implemented across DMH seem to adhere to industry acceptable security and privacy guidance. Business Enabling Services scored second to highest amongst the eight (8) measurement areas. Business Enabling Services primarily measures Workflow Management, Form Management such as online data entry, and Business Process/Relationship Management. The higher scores seen in this technical area were largely due to the capabilities of the primary DMH system - MEDITECH. DMH averaged a 1.7, just short of a 2.0 rating, for core operation Solution Sets such as Service Determination; Enrollment/Registration and Discharge; Service Coordination/Tracking; and Care Planning and Medical Report Management. MEDITECH additionally provides some capability for application module level configurations. DMH has also implemented supporting applications that enhanced Solution Set scoring such as the Legal BASE application that provides record level auditing capabilities and INFORM that provides for performance metrics and dashboards.

The areas that are under-served include Access Channels, Interoperability and Flexibility – Adaptability and Extensibility. Access Channels or those points of entry for providers, clients and staff such as web portals, browsers, kiosks, voice response systems, or mobile phones are limited today and scored a 1.0 average. Similarly, the Solution Set of Establish and Manage Business Relationships also scored a 1.0. Again, based on the technical architecture prevalent in the DMH environment, the scores of Interoperability and Flexibility – Adaptability and Extensibility were expectedly low and are suggested as core areas to address in the "to-be" future state. Also of note, Solution Sets that are not enabled well with technology include Scheduling and the overall management of business relationships and policy.

While this report primarily serves to support the current state assessment of the DMH technical environment within the context of the MITA TCM, [Section 4.0 – Recommendations](#) provides some context for leadership to consider as it moves forward into envisioning, planning and defining requirements for the future state.

1.0 Purpose

1.1 Background

The Department of Mental Health (DMH) provides community-based continuing care services to children, adolescents, and adults. To be approved for services, an individual must meet specific clinical criteria, be determined in need of DMH services, and have no other means of obtaining the service. In SFY2010, DMH served 27,813 individuals, including approximately 3,500 children and adolescents. DMH operates two (2) psychiatric continuing care hospitals, five (5) community mental health centers (three (3) of which contain inpatient units), psychiatric units in two (2) Bureau of Public Health Facilities (BoPHF) operated hospitals and contracts for 30 continuing care beds in a private psychiatric facility for a total inpatient capacity of 658 adult beds and 30 adolescent beds. DMH annually performs statutory evaluations and/or other forensic services to nearly 16,000 individuals through the adult and juvenile court system.

Community Based Flexible Services (CBFS), a new service model which began July 1, 2009, is the cornerstone of the Department's community mental health system for adults. CBFS services provides rehabilitative interventions and supports in partnership with individuals and their families to promote and facilitate recovery. CBFS enhanced and transformed service components previously provided in residential and community rehabilitative programs to meet consumer need and preference. Other DMH state-operated and contracted services providing rehabilitation and support to adults include case management, clubhouses, and Program of Assertive Community Treatment (PACT). In addition, DMH offers services focused on recovery and client empowerment. In a shift towards consumer-directed care, DMH funds and supports a variety of consumer initiatives, including peer and family support, peer mentoring, warm-lines and recovery learning communities.

Most community-based programs for children and youth provide resilience building, rehabilitative and supportive functions in a flexible manner to match the goals and needs of the individual client. These include case management, after-school day services, supported education and skills training, therapeutic foster care, individual and family flexible support, including in-home treatment, mentoring and respite care, and a range of residential services, provided in group care, apartment, or home settings. For children with severe needs, DMH has structured its contracts so that a residential level of care can be provided in a child's home if clinically appropriate.

For additional information about DMH, please see: [Department of Mental Health \(DMH\) Home Page](#)

1.2 Current Technical Environment Overview

The primary system that supports the day-to-day business functions of the Department of Mental Health is the Mental Health Information System (MHIS). MHIS is a customized Commercial-off-the-Shelf (COTS) product from MEDITECH that was implemented in 2000. This system supports approximately 4,000 users and is the core electronic health record management system of DMH. MHIS is a prevalent source of data for the DMH information system data repository and data warehouse. MHIS is modular in design but does not meet generally accepted service oriented architecture (SOA) principles. MHIS modules provide functionality across many of the DMH identified Solution Sets such as:

- Service Determination
- Registration, Intake, and Discharge
- Service Coordination/Tracking
- Care Planning and Treatment
- Medical Record Management
- Claims, Billing, and Financial Processing
- Service Delivery Data from Contracted Providers
- Legal, Forensic and Guardianship
- Provider and Contractor Management and Procurement
- Executive Support

Through the DMH Data Repository and Data Warehouse, MHIS data and data from other DMH applications is utilized to populate supporting systems such as reporting and interface tools like the INFORM application. INFORM was internally developed in 2004 and is a Microsoft SQL server-based system that is the primary means for approximately 400 employees to extract prepared reports from the DHM data warehouse. Similarly, Clinical Automated Record System for Southeast Area (CARE) was also internally developed using Microsoft Access and supports approximately 400 users (circa 1995). CARE supports seven (7), of the 20 Solution Sets as a primary system and most notably supports the Medical Record Management, Care Planning and Treatment, and Service Coordination and Tracking Solution Sets.

DMH's technical environment receives support via a large variety of user maintained Microsoft Excel spreadsheets and Microsoft Access databases. Peripheral systems such as the DMH Admissions and Referral Tracking System (DART) play key supporting or secondary roles to several other business activities such as Executive Support. DART is a Microsoft SQL Server-based system consisting of web based data entry screens and an Access reporting module. External systems are also utilized in the DMH environment such as the use of the Bureau of Public Health Facilities' MEDITECH system.

1.3 TCM Overview

The Centers for Medicare & Medicaid Services (CMS), through its Medicaid Information Technology Architecture (MITA), provides a framework and guidance for states to assess capabilities and maturity across business, information and technical architectures. Specifically, the Technical Capability Matrix (TCM) within MITA is intended to assist states in the assessment of their levels of technical capability and maturity. This assessment, in conjunction with the Business Capability Matrix (BCM), will help Massachusetts identify their current state and plan their future business and technical architecture. CMS describes the TCM as, "... a mechanism that allows a state to systematically mature their enterprise to keep up with the constantly changing world of technology." It is important to point out that technical capabilities enable business capabilities and that the "business should drive technology".

The purpose of the TCM is to describe the boundaries and behavior of each technical area in the context of the increasing levels of the maturity. This TCM analysis by the Commonwealth of Massachusetts is based upon the Medicaid IT Architecture (MITA) 2.0 framework available at the start of this project. This project is unique in that it is not being conducted at the Medicaid enterprise-level, but rather is focused upon the current technologies within three (3) departments: Mental Health, Developmental Services, and Public Health (DHM, DDS, and BoPHF respectively).

As the MITA Framework continues to evolve (e.g. version 3.0 due out in the coming months), it encourages growth and transformation by illustrating the benefits of improving State operations and provides tools to help states achieve that transformation. States will be active participants in refining the definition of capabilities for each level. States will identify capabilities that meet their business needs: Some capabilities will be selected from the MITA TCM, and others will be new capabilities created by the state. These new capabilities will be added to the MITA TCM (in accordance with MITA procedures) and will be available for other states to use. There are 33 technical capability definitions within the first three (3) levels of maturity of the TCM that are yet to be defined by CMS. Because of this the BerryDunn team created definitions for these capabilities in an effort to increase precision of the assessment. The final Matrix used for this project can be seen in *Appendix A: Technical Capability Matrix Template*. The 33 definitions created by the BerryDunn team are highlighted in yellow in section 2.2.

Additionally, a decision to escalate the technical area of B.6 (Decision Support) from a sub-category to a parent-category was made. This decision was based on the importance and nature of this technical area. Business Enabling Services without the delineation includes eleven (11) technical areas that out-scale other similar categories such as Interoperability, Data Management and Sharing, and Performance Measurement which all include only two (2) technical areas. The eight (8) technical categories are listed below.

- (1) B.0 Business Enabling Services
- (2) B.6 Decision Support
- (3) A.0 Access Channels
- (4) I.0 Interoperability
- (5) D.0 Data Management and Sharing
- (6) P.0 Performance Measurement
- (7) S.0 Security and Privacy
- (8) F.0 Flexibility – Adaptability and Extensibility

The BerryDunn team has incorporated the use of "Solution Sets" throughout the TCM analysis and assessment. Solution Sets are logical groupings of DMH systems and applications that

support a specific business function. This approach introduces alignment to the specific business processes of the Business Capability Matrix (BCM), including State Specific Processes (SSPs). The discipline of cross-walking the TCM to the BCM enhances the overall assessment by providing a direct correlation between those applications, systems, and their technologies and the correlating business processes they support. The full cross-walk can be found in: *Section 2.4*.

Solution Sets:

- | | |
|---|--|
| 1. Service Determination | 13. Manage Consumer Funds |
| 2. Eligibility | 14. Legal, Forensic, and Guardianship |
| 3. Enrollment/Registration, Intake, and Discharge | 15. Incident Management |
| 4. Service Coordination and Tracking (and Communication) | 16. Accreditation and Licensing |
| 5. Scheduling | 17. Quality Management |
| 6. Care Planning and Treatment | 18. Provider and Contractor Management and Procurement |
| 7. Medical Record Management | 19. Program Management |
| 8. Information Privacy and Security | 20. Manage Policy and Goals |
| 9. Order Entry, Laboratory, and Pharmacy | 21. Establish and Manage Business Relationships |
| 10. Claims, Billing and Financial Processing | 22. Infrastructure and IT |
| 11. Service Delivery Data from Contracted Providers | 23. Executive Support |
| 12. Interagency Coordination for Shared Client Services | |

To support the Solution Set construction, a high-level analysis of the detailed systemic environment was performed. The BerryDunn team facilitated sessions to identify and inventory the applications and systems that are currently used within the department. A conceptual weight for each of the applications and systems was determined in the context of how significantly each contributes to the respective Solution Set. Subsequently, in the context of the Solution Set assessment and scoring, these applications and systems were further analyzed and influenced the Solution Set score based on their relative weight based on aspect and ratio (e.g. supports more users, more transactional volume, demands more day-to-day user processing time.) The full list of system inventories can be seen in *Appendix B: Application System Inventories*. This list of inventory captures pertinent details, such as the number of users, year installed, system architecture tiers, etc. The initial weighting of applications as primary, secondary, or non-applicable support systems can be seen in *Appendix C: Weighted Solution Sets*.

2.0 Methodology

2.1 Approach

The BerryDunn team met with the Massachusetts project manager in early August, 2011 to discuss the TCM plan, schedule, approach and upcoming kick-off materials. After some internal review and revision BerryDunn reissued the TCM materials to the Commonwealth project manager on August 31, 2011. Most notably, the BerryDunn team created language for those blank definitions within the CMS issued TCM. The Massachusetts project manager agreed that having consistent and defined metrics that would be used throughout the project including across agencies was critical to accurately capturing the TCM scoring and rationale. The project manager also reviewed the kick-off presentation that was then later used by BerryDunn to kick-off the TCM meetings with DMH TCM leads and their designated staff.

As a remote activity, the DMH TCM leads and their staff compiled an inventory of their applications/technology so that these systems could later be understood in their support (primary or secondary) to that of a specific technical solution of a business need.

Prior to holding agency specific meetings, BerryDunn held preparatory teleconferences with the DMH TCM team to ensure clarity of the language and terms of the TCM, the concept of Solution Sets, and to finalize system/application inventories for each agency. This was completed as a prerequisite to holding the TCM scoring sessions given those sessions would likely use up all available time due to the large volume of scores being captured (32 TCM metrics x 23 Solution Sets or 736 scores to capture).

The kick-off meeting was held with DMH during the week of September 12, 2011 in which Solution Sets were further defined and a cross-walk was created that aligned Solution Sets to their supporting applications. Another cross-walking effort also took place that aligned the Business Capacity Matrix (BCM) and State Specific Processes (SSPs) to the TCM.

Lastly, during the first week of October, the assessment and scoring session was held with DMH that focused specifically on ranking the Solution Sets within the TCM. The session was initiated by reviewing the definitions of each of the Solution Sets, discussing their respective applications and systems and then processing each within the context and guidance of the TCM.

The remainder of Section 2.0 is organized by this approach and the activities that BerryDunn processed for this TCM project:

- **Technical Capability Matrix Update**
- **Solution Set Creation**
- **Alignment of Business Processes**
- **Inventory Applications/Technology**
- **Alignment and Modeling**
- **Assessment and Scoring**

2.2 Technical Capability Matrix Update

During this step, the TCM was updated to address the incomplete nature of the TCM. Within the TCM of MITA 2.0, there are gaps in the definition of capabilities for specific technical areas and levels of maturity. For example, for “B.3 Business Process Management”, the TCM provides maturity definitions for Level-1 and Level-3, but not Level-2. The BerryDunn team, in collaboration with the Commonwealth’s Project Manager, made the decision to address these gaps. The goal of this decision was to attain a higher level of precision for the assessment. The BerryDunn team recommended one (1) set of definitions be developed for use by all three (3) agencies. The Commonwealth’s Project Manager supported this approach and indicated that definitions needed to be developed for Levels 1, 2 and 3 only.

In order to create the definitions for the undefined capabilities, the BerryDunn team followed the high-level guidance from the Human Services Research and Technology Institute (HSRTI) for the progression of maturity (Figure 2 below.)

Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
<i>Performed</i>	<i>Managed</i>	<i>Defined</i>	<i>Quantitatively Managed</i>	<i>Optimized</i>
Performed processes are generally informal, they are not institutionalized and improvements are frequently short-lived.	Managed processes are planned by the organization. These processes are supported by formal policies and qualified staff, and are managed according to referenced process objectives.	Defined processes are managed processes that are tailored by the organization to support a particular business / operating unit. These process descriptions include more detail, are managed more proactively and recognize a higher level of process interactions.	Quantitatively managed processes are defined processes that are enhanced by using statistical and related analytical methods.	Optimized processes are qualitatively managed processes that focus on understanding the root cause relationships between and within specified processes. These process efforts emphasize continuous improvement within and across processes.

Figure 2: Guidance to create capability definitions

In addressing the 33 undefined capabilities within the TCM, the BerryDunn team encountered blank definitions for each level of capability (1.0, 2.0, and 3.0). To explain the logic, the below example, “B.1 Forms Management” provided Level 1 and Level 2 definitions, but failed to address Level 3. To address this gap, the BerryDunn team followed the HSRTI guidance and utilized the defined levels taxonomies (1 and 2) trends to create the Level 3 definition. A similar, consistent approach was utilized for missing Level 1 and Level 2 definitions. An example of each is provided below in Figure 3, where the original TCM had previously been blank for the cells highlighted in yellow. All other definitions are CMS original definitions. The newly created definitions appear in yellow highlight and can be seen throughout the TCM. (See: *Appendix A Technical Capability Matrix Template*.)

Technical Area/Technical Function	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities
B.1 Forms Management	Manual data entry on hardcopy forms	Online data entry on electronic forms	Partially automated processes that merge known data into the forms and requires minimal electronic data entry

Technical Area/Technical Function	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities
B.3 Business Process Management (BPM)	Manual, by user (core services and accompany valued defined, infrastructure in place)	Processes are planned and executed in accordance with policy and are monitored, controlled, and reviewed	Specification and management of business processes in conformance with MITA BPM standards (e.g., Business Process Execution Language [BPEL])
P.1 Performance Data Collection and Reporting	Manual processes used, few predefined methods, requires extensive user intervention	Collect and report using predefined and ad hoc reporting methods and currently defined performance metrics	Define, implement, collect, and report using a set of business process-related performance metrics that conform to MITA-defined performance metrics

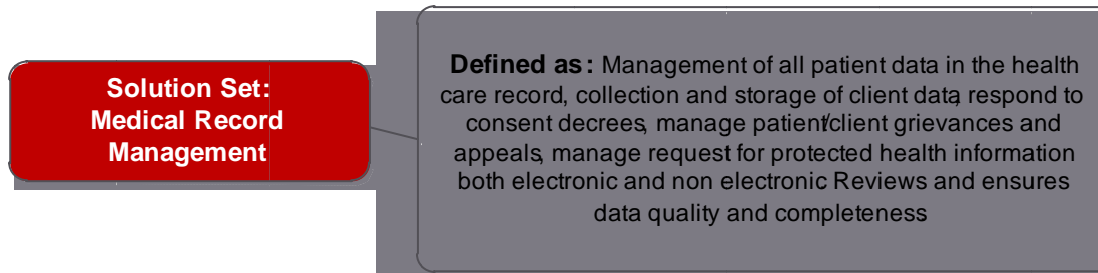
Figure 3: TCM newly defined capabilities highlighted in yellow

The BerryDunn team revised the TCM definitions and circulated the revised TCM to the BerryDunn team leads for review and comment. The final draft was presented to the Commonwealth Project Manager and a technical representative from ITD on August 31, 2011. Several additional comments were received from the Commonwealth and incorporated into the final TCM.

The BerryDunn team used this updated TCM with DMH during the week of September 12, 2011. Of the 33 definitions that the BerryDunn team created, only one (1), S.3 “Authorization and Access Control” required modification after being “field tested” by the TCM team during the assessment and scoring sessions.

2.3 Identify Solution Sets

During this step, Solution Sets were created by the TCM team based on related functional business processes as depicted below in the Medical Record Management Example:



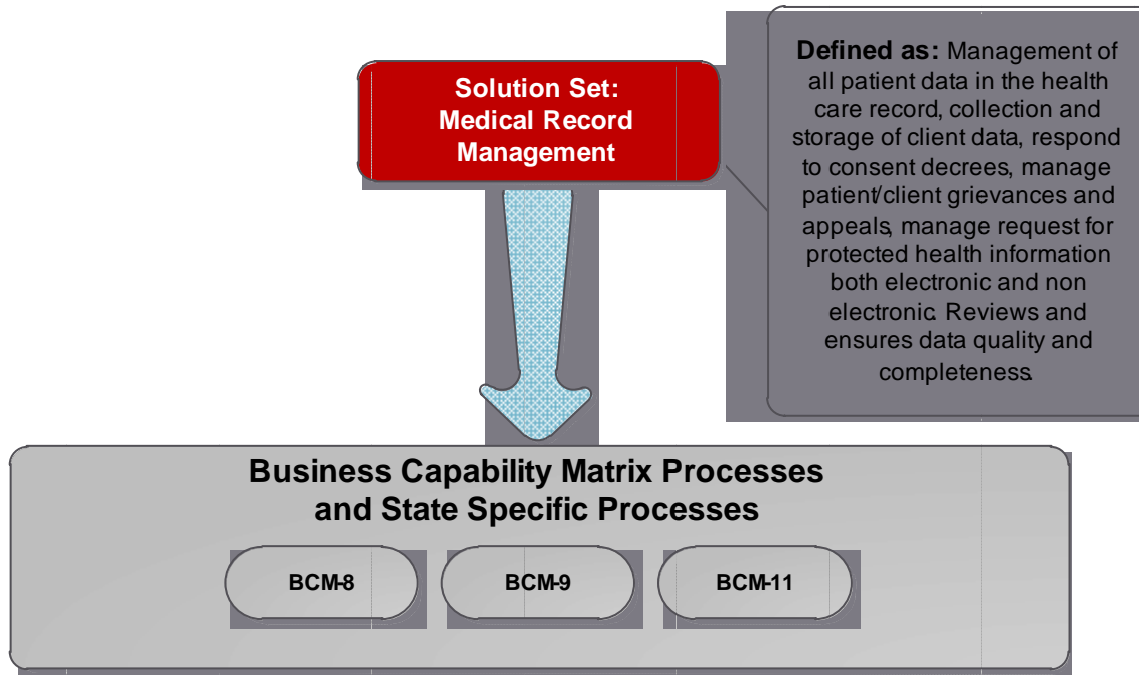
Twenty-three (23) Solution Sets were created and defined:

Solution Set Name	Functional Summary
Service Determination	Determine appropriateness for services; determine what services are needed and if they are available.
Eligibility	Determine eligibility, manage disallowances, manage all eligibility communications, manage all waivers, grievances and appeals related to eligibility. Manage program wait lists.
Enrollment/Registration, Intake, and Discharge	Intake screening, registration and admission, suspend/disenroll/discharge, track program capacity and censuses, manage demographic data
Service, Coordination/Tracking, and Communication	Coordination of Care delivery, Communication protocols, Patient/Client communication, coordination of discharge services and follow up care, referral authorization management, Manage individual service prioritization, manage individual allocations and service budgets, manage waitlists for programs, manage individual transportation information
Scheduling	Manage staff scheduling, manage timekeeping and payroll, patient scheduling, resource scheduling, group scheduling.
Care Planning and Treatment	Initial screening and assessment, treatment planning. Complete documentation of patient care using federal and state criteria, rules, best practices and professional judgment. Coordination of care delivery, discharge planning, managing patient outcomes, develops and manages individual service plans. Evaluate and document patient risk, restraint documentation and reporting of all patient care data as needed.
Medical Record Management	Management of all patient data in the health care record, collection and storage of client data, respond to consent decrees, manage patient/client grievances and appeals, manage request for protected health information both electronic and non electronic. Reviews and ensures data quality and completeness.
Information Privacy and Security	Manage compliance to privacy, security and confidentiality standards and regulations. Secure communications to meet confidentiality and legal requirements, security audits. Access based on role and level of authorization. Ensures all health information is protected.
Order Entry, Laboratory, and Pharmacy	Manage order entry, manage laboratory, and manage pharmacy services.
Claims, Billing and Financial Processing	Fiscal monitoring of patient/client, contractor services, program financial management, management position control, recruitment, accounting, 1099's, payroll, purchasing, accounts payable, revenue cycle, reimbursement, budget management and formulation, claims generation, auditing, mass adjustment, inquire payment status, manage recoupment, collections and recovery, authorize referrals and service, manage state fund, manage client specific service funds, generate financial and program analysis.
Service Delivery Data from Contracted Providers	Track patient data from contracted providers about quantity, type of service, delivered to individuals or groups storage of health care information.

Solution Set Name	Functional Summary
Interagency Coordination for Shared Client Services	Create and manage business relationships, engage in joint planning. Cross agency communication of patient information including sharing of aggregate data for the purpose of utilization management and performance monitoring.
Manage Consumer Funds	Manage individual patient funds not related to treatment.
Legal, Forensic, and Guardianship	Document patient legal status, duty to warn, Roger's orders, forensic and guardianship data. Manage ongoing and potential legal cases/actions. Document and track risk evaluations. Coordinate and liaise with investigating agencies. Manage provider contracts. Manage client information policy. Respond to consent decrees. Manage patient grievance and appeals process.
Incident Management	Initiate and manage case and event reporting. Manage incident reporting. Manage medication occurrence reporting. Provide reporting on all incident types (including medication, restraint and other types).
Accreditation and Licensing	Manage program/providers surveys and certification. Manage accreditation and credentialing necessary for program participation. Monitor performance utilizing measures for accreditation and credentialing. Manage licensing of contracted providers.
Quality Management	Manage waiver programs provider qualifications, ensure program compliance as agreed upon with Medicaid, Manage monitoring of national core indicators and performance measures, Manage/monitor provider quality performance and compliance with standards. Conduct routine fiscal and clinical monitoring of patient outcomes and expenditures from a quality standpoint. Initiate, and manage case or event and subsequent incident reporting. Manage grievance and appeals process. Help to identify areas for improvement so preventive activities can be conducted. Perform contractor/provider outreach and training to ensure quality standards are defined. Allow for quality reporting.
Provider and Contractor Management and Procurement	Manage provider/contractor procurement, awarding contracts, develop contracts, register providers/contractor, manage provider/contractor information, and close out contracts. Manage provider/contractor communications and grievance and appeals process, provide training and perform audits. Address requests for contractor/provider information. Monitor patient outcomes. Provide a provider listing of available providers to deliver services in support of participant direction. Manage transportation providers. Track participant driven budget. Manage budget billing and reimbursement for provider contracts.
Manage Policy and Goals	Develop and maintain program policy, agency goals and initiatives. Maintain state plan.
Establish and Manage Business Relationships	Create and manage business relationships, facilitate communication with business relationships. Engage in joint planning to coordinate efforts and programs between agencies. Develop and maintain program policy and agency goals. Terminate business relationships.
Infrastructure and IT	Manage information with respect to infrastructure and information technology including but not limited to computer devices, network topology, software, and other hardware/physical assets.
Executive Support	Reporting capability to support executive decisions and monitor all business process areas including but not limited too; population management, resource management, financial, quality, incident reporting, contract management, productivity etc.

2.4 Alignment of Business Processes

During this step, the TCM team aligned Solution Sets to the identified business processes within the BCM as depicted below in the Medical Record Management example:



As described previously, this multi-directional alignment provides valuable information to DMH to address targeted business and technical improvements. The following table illustrates the alignment.

Solution Sets	BCM and SSP: Related Business Processes
Service Determination	1
Enrollment/Registration, Intake, and Discharge	2, 9, 18
Service Coordination/Tracking	4
Scheduling	5
Care Planning and Treatment	7, 8
Medical Record Management	9, 10, 11, 13
Information Privacy and Security	12, 13
Order Entry, Laboratory, and Pharmacy	14/15
Claims, Billing and Financial Processing	16, 27
Service Delivery Data from Contracted Providers	17
Interagency Coordination for Shared Client Services	19
Manage Consumer Funds	20
Legal, Forensic, and Guardianship	21
Incident Management	22
Accreditation and Licensing	24, 28
Quality Management	23
Provider and Contractor Management and Procurement	25, 26
Manage Policy and Goals	M56, M58
Establish and Manage Business Relationships	M67, M68, M69, M70

2.5 Inventory Applications/Technology

During this step, department specific applications and systems that support the business processes within the BCM were identified and inventoried as depicted below in the Medical Record Management example:

Consistent with the process, this dimension of the alignment provides clarity to what the applications (or technology) environment consists of and how it enables the business processes. Key attributes such as the number of users that use the system, the system's age, and the type of data handled have been captured as outlined below.

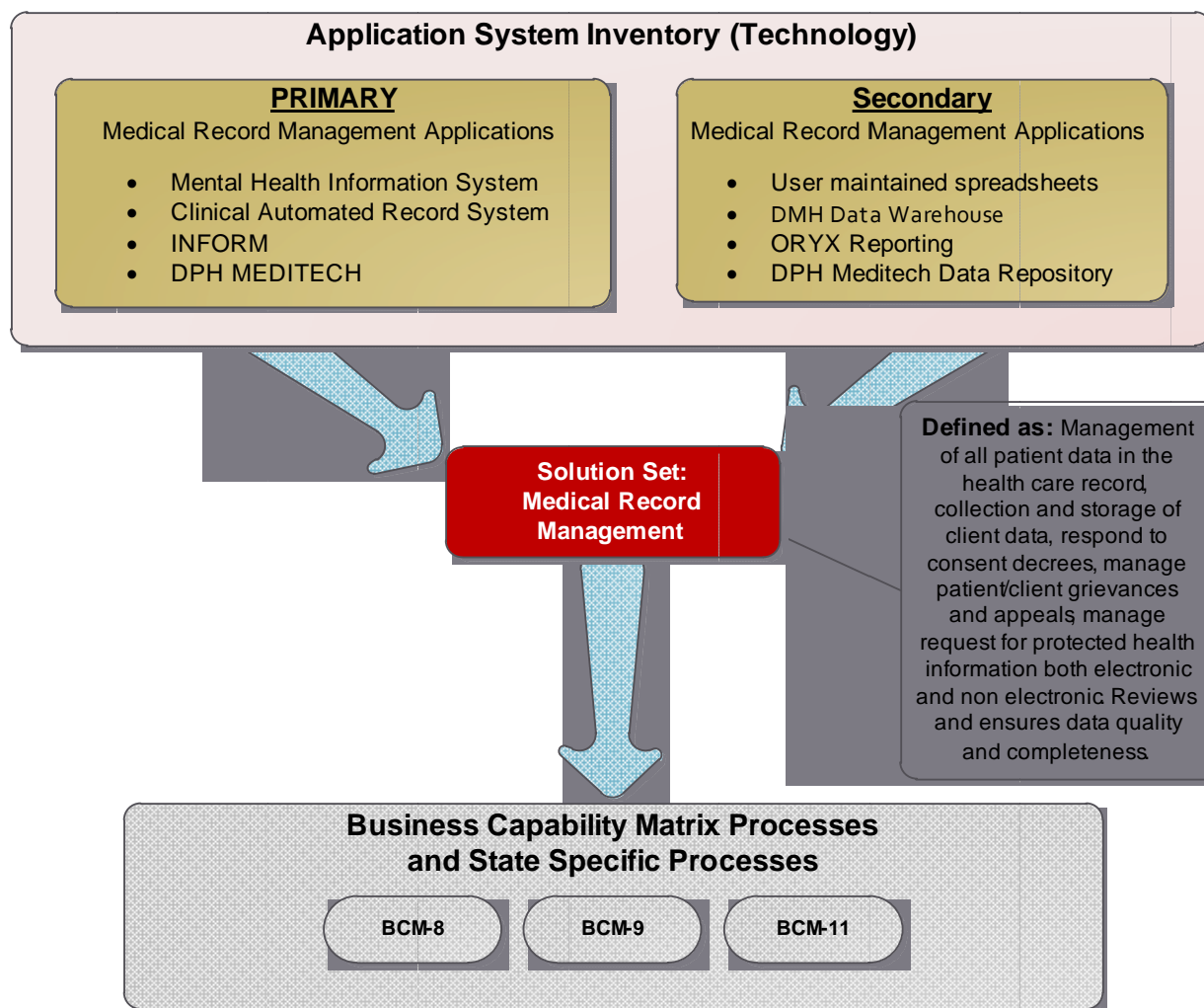
Application System Inventory – Field Definitions	
Column Name	Description of Column Contents
Application Short Name	The common or abbreviated application name.
Application Full Name	The full name of the application with description as appropriate.
App Type (COTS, Custom, Hybrid)	The application is primarily COTS, custom coded, or a hybrid.
X = Transaction Processing	An X indicates the system is used to record transactional information.
X = Information Access	An X indicates the system is used to communicate information, for example using lists or maps.
X = End-User/Group productivity	An X indicates the system is used as a collaboration or group coordination tool.
X = Browser Delivery	An X indicates the system uses web browsers as the primary user interface.
Operating System & Platform	The OS and platform for operating the system.
Database	The database technology used by the system.

Application System Inventory – Field Definitions	
Column Name	Description of Column Contents
Language	The implementation language used by the system.
Data (Pers/PHI/FIN)	The system manages Personal, Health or Financial information.
Access Via (Inter/Intra/VPN)	Access to the system is via the Internet, Intranet or externally via VPN.
Scope: Bureau, Dept/Agency, Secretariat, Commonwealth	The application's scope of use.
Year Installed	The year the system went live.
Number of IT Staff Assigned	The number of IT staff assigned, using fractional FTEs for part-time support.
Total Registered Users	The total number of end-users, indicating public access if appropriate.

The full Inventory of Applications/Technology can be seen in: Appendix B: Application System Inventories

2.6 Alignment and Modeling

During this step, the TCM team aligned the application and system inventory to the Solution Sets. Each application and systems relative contribution to the Solution Set was discussed and assessed to establish the Solution Set model for scoring as depicted below in the Medical Record Management example:

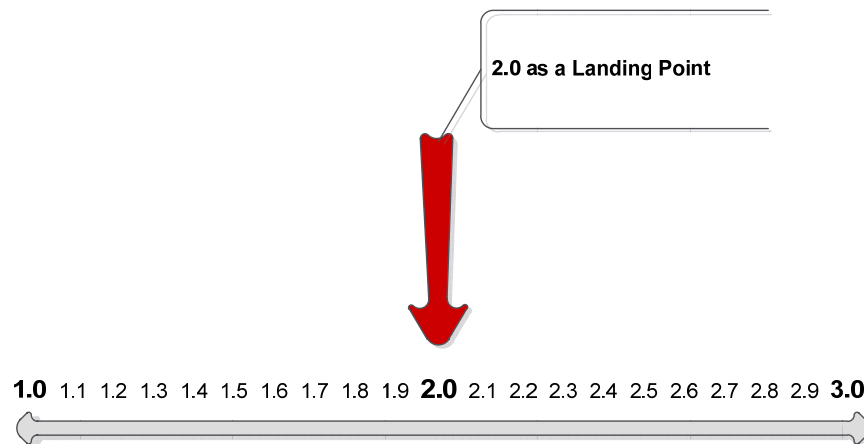


Prior to the TCM assessment and scoring session, the TCM team established initial weights to each of the applications and systems as to if they were primary, secondary, or not applicable to the Solution Set. (*The weighted Solution Sets can be seen in Appendix C: Weighted Solution Sets*). During the assessment and scoring sessions, these applications and systems were further analyzed with respect to their contribution to the Solution Set. This information influenced the Solution Set score by the relative weight based on aspect and ratio (e.g. supports more users, more transactional volume, demands more day-to-day user processing time.) For example, any one Solution Set might be comprised of several applications, but the largest or most widely used application(s) are given the most weight within the Solution Set. Therefore, their capabilities take precedent and more dramatically influence the TCM scoring assessment.

The full list of the system inventory to Solution Set alignment can be seen in: Appendix C: Weighted Solution Sets.

2.7 Assessment and Scoring

During this step the first week of October, 2011, the TCM team assessed and scored each Solution Set within the updated TCM. Scores were delineated with decimal points to capture useful rationale. During the TCM assessment and scoring session, maturity level 2.0 was typically used as a baseline, or “landing point”, unless a precedent had previously been established during the session for that aspect. If the 2.0 maturity level was determined not to be a good fit for the current environment then discussions focused respectfully to either the 1.0 and/or 3.0 definitions. Once the baseline maturity level (1.0, 2.0, or 3.0) was determined, the assessment discussions continued until consensus of the assigned score.



The TCM team initiated the assessment and scoring sessions by first reviewing the definition of the Solution Set (e.g. what business processes were included within this Solution Set), followed by reviewing and discussing the department specific applications and systems that support this Solution Set.

Once a baseline for the Solution Set was agreed upon, the TCM team processed the aspect and ratio conversations invoking the point system described below.

- Even decimal points (1.2, 1.4, 2.2, 2.4...) were awarded if the Solution Set was being pulled **up** and away from its baseline maturity level, by moving closer to a more advanced maturity level.
- Odd decimal points (1.1, 1.3, 2.1, 2.3...) were awarded if the Solution Set was being pulled **down** and away from its baseline maturity level, by moving closer to a lesser maturity level.

Through logical, structured and healthy discussion, the TCM team reached consensus on each score. The next section, Section 3.0, identifies the scores and provides averages for the Solution Sets, the TCM technical categories and the specific technical areas.

3.0 Technical Capability Analysis and Assessment

(1) B.0 Business Enabling Services

1. B.1 Forms Management
2. B.2 Workflow Management
3. B.3 Business Process Management (BPM)
4. B.4 Business Relationship Management (BRM)
5. B.5 Foreign Language Support

(2) B.6 Decision Support

6. B.6.1 Data Warehouse
7. B.6.2 Data Marts
8. B.6.3 Ad hoc Reporting
9. B.6.4 Data Mining
10. B.6.5 Statistical Analysis
11. B.6.6 Neural Network Tools

(3) A.0 Access Channels

12. A.1 Portal Access
13. A.2 Support for Access Devices
14. I.1.3 Orchestration and Composition
15. I.2 Standards-Based Data Exchange
16. I.3 Integration of Legacy Systems

(4) I.0 Interoperability

17. I.1.1 Service Structuring and Invocation
18. I.1.2 Enterprise Service Bus

(5) D.0 Data Management and Sharing

19. D.1 Data Exchange Across Multiple Organizations
20. D.2 Adoption of Data Standards

(6) P.0 Performance Measurement

21. P.1 Performance Data Collection and Reporting
22. P.2 Dashboard Generation

(7) S.0 Security and Privacy

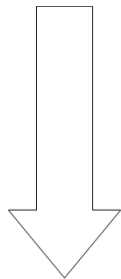
23. S.1 Authentication
24. S.2 Authentication Devices
25. S.3 Authorization and Access Control
26. S.4 Intrusion Detection
27. S.5 Logging and Auditing
28. S.6 Privacy

(8) F.0 Flexibility – Adaptability and Extensibility

29. F.1 Rules-Driven Processing
30. F.2 Extensibility
31. F.3 Automate Configuration and Reconfiguration Services
32. F.4 Introduction of New Technology

Least Detail

Subsequent pages of Section 3.0 organize the above eight (8) technical categories and their 32 technical area scores in order of *descending* level of detail and starting with (1) B.0 – Business Enabling Services.



Most Detail

Section 3.1: Depicts the eight (8) TCM Category Scores.

Section 3.2: Depicts the eight (8) TCM Category Scores plus, the 23 Solution Set score details.

Section 3.3 – 3.10: Depicts the eight (8) TCM Areas including the 32 Technical Area details, plus the 23 Solution Sets details.

3.1 TCM Scores: Technical Capability Matrix Summary

In summary, the assessment indicates that although the DMH technical landscape is functional, it is legacy and a candidate for improvement across the breadth of technical areas and functions. This is indicated by the average range of score from 1.0 to 1.6 on a scale of 1.0 to 5.0 as depicted in Figure 4.

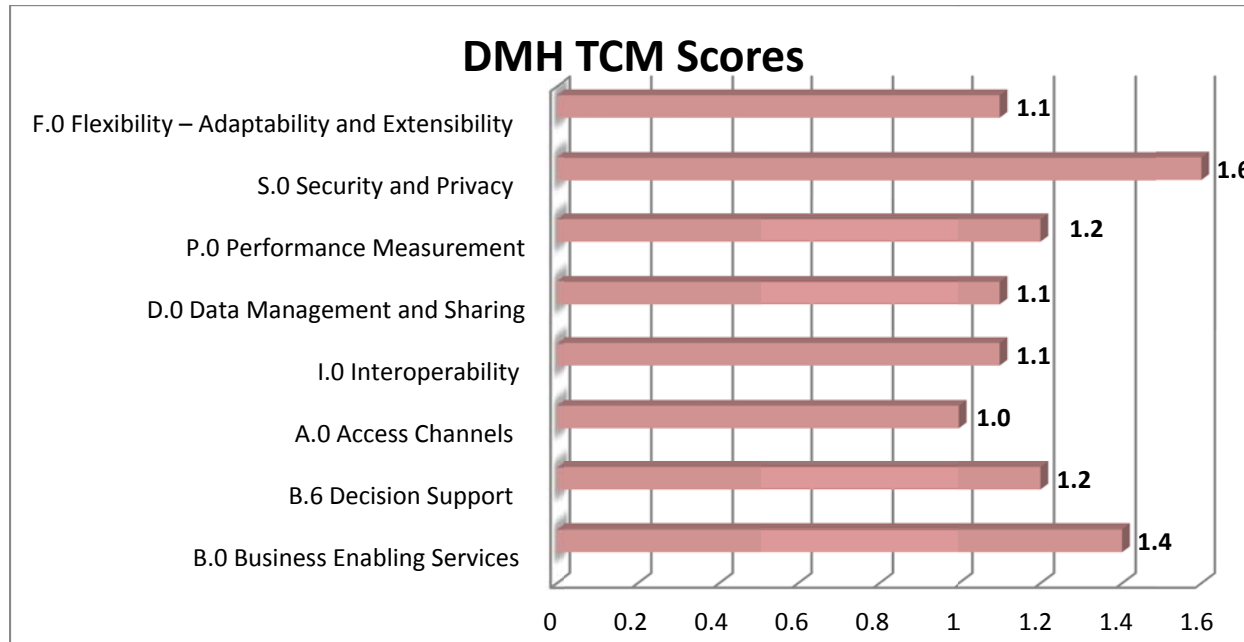


Figure 4: DMH TCM Average Scores by Technical Area (scale = 1.0 – 5.0)

3.2 TCM Scores: Technical Capability Matrix Summary and Solution Set Detail

Technical Capability Matrix	Technical Area Average	Service Determination	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships	Executive Support
B.0 Business Enabling Services	1.4	1.7	1.7	1.7	1.1	1.7	1.7	1.3	1.0	1.5	1.8	1.2	1.1	1.7	1.5	1.2	1.9	1.8	1.0	1.0	1.0
B.6 Decision Support	1.2	1.3	1.3	1.3	1.0	1.3	1.3	1.0	1.0	1.4	1.3	1.1	1.0	1.3	1.6	1.0	1.0	1.7	1.0	1.0	1.4
A.0 Access Channels	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
I.0 Interoperability	1.1	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.2	1.2	1.0	1.0	1.0	1.1	1.2	1.0	1.0	1.0	1.0
D.0 Data Management and Sharing	1.1	1.0	1.0	1.0	1.0	1.1	1.1	1.0	1.0	1.6	1.6	1.6	1.0	1.0	1.0	1.2	1.0	1.0	1.0	1.0	1.1
P.0 Performance Measurement	1.2	1.4	1.4	1.0	1.0	1.5	1.5	1.0	1.0	1.1	1.0	1.1	1.0	1.2	1.0	1.0	1.7	1.0	1.0	1.0	1.1
S.0 Security and Privacy	1.6	1.8	1.8	1.8	1.6	1.8	1.8	1.3	1.4	1.7	1.7	1.5	1.7	1.7	1.3	1.7	1.5	1.5	1.0	1.0	1.6
F.0 Flexibility – Adaptability and Extensibility	1.1	1.3	1.3	1.3	1.0	1.3	1.3	1.0	1.0	1.3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Solution Set Average	1.2	1.3	1.3	1.3	1.1	1.3	1.3	1.1	1.1	1.3	1.3	1.2	1.1	1.2	1.2	1.1	1.3	1.3	1.0	1.0	1.2

3.3 TCM Scores: Business Enabling Services Details (B.0)																					
Technical Capability Matrix	Technical Area Average	Service Determination	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships with Medicaid	Executive Support
Business Enabling Services Average	1.4	1.7	1.7	1.7	1.1	1.7	1.7	1.3	1.0	1.5	1.8	1.2	1.1	1.7	1.5	1.2	1.9	1.8	1.0	1.0	1.0
B.1 Forms Management	1.9	2.4	2.4	2.4	1.7	2.4	2.4	2.0	1.2	2.4	2.4	2.0	1.7	2.2	1.7	2.0	2.4	2.2	1.0	1.0	1.0
Electronic Forms are prevalent across the Solution Sets substantiating the baseline score of 2.0. MEDITECH supports a level of efficiency in data collection and merging known data, thus moving towards the 3.0 score. Several Solution Sets include manual forms, thus reducing them from the 2.0 standard.																					
B.2 Workflow Management	1.6	2.0	2.0	2.0	1.0	2.0	2.0	1.7	1.0	2.0	2.2	1.0	1.0	1.7	2.0	1.0	2.2	2.0	1.0	1.0	1.0
Level 2.0 workflow management is supported across the Solution Sets where MEDITECH is primary. This includes electronic routing of information to business processes and designated roles. Two (2) Solution Sets have started to incorporate advanced workflow where information is routed based on logic giving them a score of 2.2. Several Solution Sets are supported by manual workflow, thus reducing them from the 2.0 standard.																					
B.3 Business Process Management (BPM)	1.5	2.0	2.0	2.0	1.0	2.0	2.0	1.0	1.0	1.0	2.0	1.0	1.0	1.7	2.0	1.0	2.0	2.0	1.0	1.0	1.0
Business process management is not formalized in the DMH environment, thus not instantiated across the Solution Sets in industry best-practice fashion. In several cases, business process is planned and executed to a degree, thus the 2.0 score was set.																					
B.4 Business Relationship Management (BRM)	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.4	1.0	1.0	1.7	1.0	1.0	2.0	2.0	1.0	1.0	1.0
BRM is not formalized in the DMH environment, thus not instantiated across the Solution Sets in industry best-practice fashion. In several cases, the BRM is planned and executed to a degree, thus the 2.0 score was set.																					
B.5 Foreign Language Support	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Foreign language is not supported within any Solution Set.																					

3.4 TCM Scores: Decision Support Details (B.6)

3.4 TCM Scores: Decision Support Details (B.6)																						
Technical Capability Matrix	Technical Area Average	Service Determination	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships with Medicaid	Executive Support	
	Decision Support Average	1.2	1.3	1.3	1.3	1.0	1.3	1.3	1.0	1.0	1.4	1.3	1.1	1.0	1.3	1.6	1.0	1.0	1.7	1.0	1.0	1.4
B.6.1 Data Warehouse	1.5	2.0	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0	2.0	1.2	1.0	1.2	1.4	1.0	1.0	2.0	1.0	1.0	2.0	
	Data Warehouse support is prevalent across the Solution Sets, especially where MEDITECH is a key contributor. Standardized data definitions exist with associated ETL (extract, transfer, and load) methods. Several Solution Sets are not supported in the DMH DW architecture, thus reducing them from the 2.0 score.																					
B.6.2 Data Marts	1.5	2.0	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0	2.0	1.2	1.0	1.2	1.4	1.0	1.0	2.0	1.0	1.0	2.0	
	Data Mart support is matched directly with the Data Warehouse support. These capabilities are also prevalent across the Solution Sets, especially where MEDITECH is a key contributor. Several Solution Sets are not supported, thus reducing them from the 2.0 score.																					
B.6.3 Ad Hoc Reporting	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.0	1.0	1.2	2.0	2.0	1.0	1.0	2.0	1.0	1.0	1.2	
	Ad Hoc Reporting is primarily supported by coded procedures as indicated by the 1.0 score. Many Solution Sets utilize Microsoft Access, but this is not considered COTS ad hoc reporting. Five (5) Solution Sets include applications that provide COTS-like reporting capabilities, thus moving up to 1.2 or landing on the 2.0 score.																					
B.6.4 Data Mining	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	2.0	1.0	1.0	1.6	1.0	1.0	1.2	
	Outside of the incident management Solution Set, data mining is mostly absent. A level of COTS support for data mining within the Legal BASE application and the MRS application extend the score in their respective Solution Sets.																					
B.6.5 Statistical Analysis	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.8	1.0	1.0	1.6	1.0	1.0	1.2	
	Similar to the data mining capabilities, statistical analysis capabilities are supported in three (3) Solution Sets via COTS-like features.																					
B.6.6 Neural Network Tools	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
	Neural Network capabilities do not exist.																					

3.5TCM Scores: Access Channels Details (A.0)

Technical Capability Matrix	Technical Area Average	Service Determination Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships	Executive Support
Access Channel Average	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
A.1 Portal Access	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Portal Access is only supported in the Service Delivery Data from Contracted Providers Solution Set for providers via the Enterprise Invoice Management (EIM) application.																				
A.2 Support for Access Devices	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
DMH Solution Sets do not extend to public facing or advanced access devices such as kiosks, voice response systems, or mobile phones.																				

3.6 TCM Scores: Interoperability Details (I.O)

Technical Capability Matrix	Technical Area Average	Service Determination Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships	Executive Support
Interoperability Average	1.1	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.2	1.2	1.2	1.0	1.0	1.0	1.1	1.2	1.0	1.0	1.0	1.0
I.1.1 Service Structuring and Invocation	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	DMH Solution Sets are not service oriented in architecture.																			
I.1.2 Enterprise Service Bus	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	DMH has not implemented an Enterprise Service Bus.																			
I.1.3 Orchestration and Composition	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.0	1.0	1.0	1.0
	The only standardized aspect to orchestration is found within the Quality Management Solution Set.																			
I.2 Standards-Based Data Exchange	1.3	1.2	1.4	1.0	1.0	1.2	1.2	1.0	1.0	2.0	2.0	2.0	1.0	1.0	1.0	1.4	2.0	1.2	1.0	1.0
	Although the score seems low here, the structured formats for data exchange (score of 2.0) are fairly optimized for the DMH enterprise – current environment.																			
I.3 Integration of Legacy Systems	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	No service oriented approach for legacy system integration, however not much need was cited for the current environment.																			

3.7TCM Scores: Data Management and Sharing Details (D.0)																					
Technical Capability Matrix	Technical Area Average	Service Determination	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships with Medicaid	Executive Support
	Data Management and Sharing Average	1.1	1.0	1.0	1.0	1.0	1.1	1.1	1.0	1.0	1.6	1.6	1.6	1.0	1.0	1.0	1.2	1.0	1.0	1.0	1.1
D.1 Data Exchange Across Multiple Organizations	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.6	1.8	1.6	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Service and claims information is exchanged based on industry accepted practice. The remainder of data requests are nonstandard formats and in various media (e.g., telephone, paper, fax, e-mail.)																				
D.2 Adoption of Data Standards	1.1	1.0	1.0	1.0	1.0	1.2	1.2	1.0	1.0	1.6	1.4	1.6	1.0	1.0	1.0	1.4	1.0	1.0	1.0	1.0	1.2
	Selected industry data standards are supported such as the DSM and clinical assessment instruments.																				

3.8TCM Scores: Performance Measurement Details (P.0)																					
Technical Capability Matrix	Technical Area Average	Service Determination	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships with Medicaid	Executive Support
	Performance Measurement Average	1.2	1.4	1.4	1.0	1.0	1.5	1.5	1.0	1.0	1.1	1.0	1.1	1.0	1.2	1.0	1.0	1.7	1.0	1.0	1.0
P.1 Performance Data Collection and Reporting	1.2	1.4	1.4	1.0	1.0	1.6	2.0	1.0	1.0	1.2	1.0	1.2	1.0	1.4	1.0	1.0	2.0	1.0	1.0	1.0	1.2
	A 2.0 is achieved through defined performance metrics and reporting capability within the Care Planning and Quality Management Solution Sets. Aspects of performance reporting are also included in several other Solution Sets related to service delivery.																				
P.2 Dashboard Generation	1.1	1.4	1.4	1.0	1.0	1.4	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.4	1.0	1.0	1.0	1.0
	Metrics are assembled in a dashboard for some service delivery and quality indicators providing for the movement towards the 2.0 score.																				

3.9 TCM Scores: Security and Privacy Details (S.0)

Technical Capability Matrix	Technical Area Average	Service Determination	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships with Medicaid	Executive Support
Security and Privacy Average	1.6	1.8	1.8	1.8	1.6	1.8	1.8	1.3	1.4	1.7	1.7	1.5	1.7	1.7	1.3	1.7	1.5	1.5	1.0	1.0	1.6
S.1 Authentication	1.9	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0	2.0
	With the exception of the 1.0 manual based Solution Sets, access is managed via logon ID and password and supports industry best-practices such as requiring users to periodically change their password and mandatory characters sets.																				
S.2 Authentication Devices	1.3	1.0	1.0	1.0	1.4	1.0	1.0	1.0	1.0	1.0	1.4	1.0	2.0	1.4	1.0	2.0	2.0	1.4	1.0	1.0	1.4
	Overall, DMH Solution Sets are not single sign-on nor do they support advanced authentication. The primary enterprise applications require additional login after initial network login and authentication. Note that the 2.0 scores are deceiving with respect to the industry best-practice concept of "single sign-on" in that the Solution Set is file based (e.g. spreadsheet or Microsoft Access) and doesn't offer additional authentication.																				
S.3 Authorization and Access Control	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0	2.0
	With the exception of the 1.0 manual based Solution Sets, user access to system resources is controlled depending on their role at sign-on.																				
S.4 Intrusion Detection	1.3	2.0	2.0	2.0	1.0	2.0	2.0	1.0	1.0	1.0	1.0	1.2	1.0	1.0	1.0	1.0	1.0	1.2	1.0	1.0	1.0
	A 2.0 score is achieved in many cases based on the MEDITECH application being operated under the defined and documented methods of MITC. Otherwise, monitoring for abnormal activities do not utilize defined and documented methods and score 1.n.																				
S.5 Logging and Auditing	1.4	1.7	1.7	1.7	1.2	1.7	1.7	1.0	1.2	2.0	1.8	1.2	1.0	2.2	1.0	1.2	1.0	1.2	1.0	1.0	1.0
	A 2.0 score is baseline for MEDITECH as it provides access to the history of a user's activities and other management functions. Legal BASE is the most capable in this area and provides record level audits, while the remainder of the Solution Set applications are limited to manual logging and analysis.																				
S.6 Privacy	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.2	2.0	2.0	1.6	2.0	1.7	1.0	2.0	1.2	1.2	1.0	1.0	2.0
	Access restriction to functionality based on defined access roles is supported to some degree by the majority of Solution Sets. Several Solution Set applications do not meet full 2.0 requirements because functionality cannot be constrained by user role.																				

3.10 TCM Scores: Flexibility – Adaptability and Extensibility Details (F.0)																					
Technical Capability Matrix	Technical Area Average	Service Determination	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships with Medicaid	Executive Support
Flexibility – Adaptability and Extensibility Average	1.1	1.3	1.3	1.3	1.0	1.3	1.3	1.0	1.0	1.3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
F.1 Rules-Driven Processing	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	The Claims, Billing and Financial Processing Solution Set is the only set that provides processing against sets of rules based on existing business processes and evidence based practices.																				
F.2 Extensibility	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Extensions to all Solution Sets require pervasive coding changes.																				
F.3 Automate Configuration and Reconfiguration Services	1.3	2.0	2.0	2.0	1.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	MEDITECH based Solution Sets provide configuration capability within application modules (e.g. ability to configure data entry forms, etc.) to meet the 2.0 requirement.																				
F.4 Introduction of New Technology	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	DMH Solution Sets are not service oriented in design and do not provide for “plug and play” components, thus any new technology can only be introduced through technology-dependent interfaces.																				

4.0 Recommendations

The primary technology within DMH is over ten years old and is not service oriented in architecture. This non-service oriented environment indicates the need for systemic replacement in order to optimize current, market available technologies and solutions. This approach will enable the enterprise to establish a technology platform that can take advantage of rapidly evolving technologies and solutions as they become available. It is recommended that DMH:

- **Continue to develop a culture that maintains the TCM in order to make improvements to the technical environment.** We recommend continuing to utilize the TCM framework to inform planning efforts to systems and business processes periodically (at minimum annually.) This periodic to-be analysis should be used to identify critical areas of improvement. By following this guidance, DMH can maintain an effective, consistent framework and methodology for technical improvements.
- **Complete the to-be MITA TCM analysis.** Progressing from one maturity level to the next will come through careful planning and structured projects and initiatives. While these projects enable a higher maturity level it may be impractical to mature every business process and technical area. DMH should leverage the CMS required to-be analysis to help determine the priority business processes and technical areas that would have the greatest potential to affect desired outcomes such as program effectiveness, healthcare quality, and administrative efficiency.
- **Review the low scoring systems in this current as-is analysis.** Proactively planning to replace and/or improve weak technical areas in the current environment will foster confidence in this overall MITA process, continue to build upon the TCM culture and act as a spring board towards the desired future state environment. Some of these initial modifications may be done quickly and with little investment. For example, several areas of the TCM scored poorly because of the lack of procedures, standards, or consistent organizational structure. Discussing options of improving these documented procedures, standard and organizational structures should be considered.
- **Create requirements for the future technical environment.** We recommend using this document as guidance and a framework to create requirements for the future technical environment “to-be” state. This approach ensures the established alignment is maintained and gaps between the current state and future state can be objectively addressed.
- **Conduct a Request for Information (RFI) to inform DMH on the available market solutions and to help shape the future Request for Responses (RFR).** Understanding the market solutions in the context of the TCM and this report will assist the DMH procurement effort.

With respect to the DMH technology operating model, the DMH members of the TCM team are extremely capable, collaborative, experienced and knowledgeable of both the business and technical environments relative to DMH and the Commonwealth HHS enterprise. The other participating departments, BoPHF and DDS, while unique, do share similar characteristics including their technical environments. This appears promising as it may be valuable to share planning and technology assets, services and resources on this path to the future.

Appendix A: Technical Capability Matrix Template

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
B.0 Business Enabling Services						
B.1 Forms Management	MM Level 2, O4, G6	Manual data entry on hardcopy forms	Online data entry on electronic forms	Partially automated processes that merge known data into the forms and requires minimal electronic data entry		
B.2 Workflow Management	O4, G4, G6	Manual routing of hardcopy files to individuals involved in processing	Electronic routing of files to business processes and individuals involved in processing Responsible for processing completion and other individual and business processes	Intelligent routing of files and/or electronic forms dependent on a complex rule set that can route based on criteria such as role, priority, content sensitivity, and prior history		
B.3 Business Process Management (BPM)	G4	Manual, by user (core services and accompany valued defined, infrastructure in place)	Processes are planned and executed in accordance with policy and are monitored, controlled, and reviewed	Specification and management of business processes in conformance with MITA BPM standards (e.g., Business Process Execution Language [BPEL])		
B.4 Business Relationship Management (BRM)	O4	Manual (e.g., by attaching annotations to case files)	BRM requirements are managed by individual applications and these BRM processes are planned, performed, measured, and controlled	Basic BRM, including tracking relationships between Medicaid system users (e.g., beneficiaries and providers) and the services they have requested and received	Advanced BRM, which includes basic BRM plus analytics support and personalization capabilities	

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
B.5 Foreign Language Support	1. Manage Applicant and Member Communication, Level 3 2. O4	Manual translation of messages into supported foreign languages	Partial foreign language support for real-time and offline interaction	Foreign language translation support for real-time and offline interaction with beneficiaries in designated languages		
B.6 Decision Support						
B.6.1 Data Warehouse	G5, O7	Data environment for reporting is created from OLTP databases and operational reporting is supported	Extracting, transforming, and loading data from multiple databases into a data warehouse using standardized data definitions.	Extracting, transforming, and loading data from multiple databases into a data warehouse that conforms with the MITA Logical Data Model		
B.6.2 Data Marts	G5, O7	Data environment for reporting is created from OLTP databases and operational reporting is supported	Extracting, transforming, and loading data from multiple databases into data marts	Importing data into data marts that conform with the MITA Logical Data Model		
B.6.3 Ad hoc Reporting	MG2 Level 2	Ad hoc reporting, typically using coded procedures	Ad hoc reporting against databases using COTS tools	Ad hoc reporting using COTS tools that allows system users to automate the running, sharing, and storing of ad hoc reports		
B.6.4 Data Mining	MG2 Level 2	Data mining to detect patterns in large volumes of data, typically using coded procedures	Data mining to detect patterns in large volumes of data using COTS tools	Partially automated data mining in which the system finds patterns using COTS tools and alerts system users for further analysis		

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
B.6.5 Statistical Analysis	MG2 Level 2	Statistical analyses (e.g., regression analysis), typically using coded procedures	Statistical analyses of designated data (e.g., regression analysis) using COTS tools	Partially automated statistical analysis in which the system finds patterns using COTS tools and alerts system users for further analysis		
B.6.6 Neural Network Tools	MG2 Level 2	None	Analyses using neural network (e.g., learning)	System automatically predicts and alerts system users, for their intervention, of patterns, relationships, and non-linear data models		
A.0 Access Channels						
A.1 Portal Access	1. O4 2. MM Level 2 3. Enroll Provider, Level 2 4. Manage Applicant and Member Communications, Level 2	Beneficiary and provider access to appropriate Medicaid business functions via manual or alphanumeric devices	Beneficiary and provider access to appropriate Medicaid business functions via portal with single online access point	Beneficiary and provider access to appropriate Medicaid business functions via portal with single online access point		
A.2 Support for Access Devices	1. O4 2. MM Level 2 3. Enroll Provider, Level 2 4. Manage Applicant and Member Communications, Level 2	Beneficiary and provider access to services via manual submission, alphanumeric ("green screen") devices, or EDI	Beneficiary and provider access to services via browser, kiosk, voice response system, or mobile phone	Beneficiary and provider access to services online via PDA		
I.0 Interoperability						
I.1.1 Service Structuring and Invocation	G4, O2, O5	Nonstandardized definition and invocation of services	Service support using architecture that does not comply with published MITA service interfaces and interface standards	Services support using architecture that complies with published MITA interfaces and interface standards	Services support using a cross-enterprise services registry (to be verified)	

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
I.1.2 Enterprise Service Bus	G4, O2, O5	None or nonstandardized application integration	Reliable messaging, including guaranteed message delivery (without duplicates) and support for nondeliverable	MITA-compliant ESB	MITA-compliant ESB interoperable outside of a State Medicaid agency	
I.1.3 Orchestration and Composition	G4, O2, O5	Nonstandardized approaches to orchestration and composition of functions within and across the Medicaid Management Information System (MMIS)	Standardized approaches to orchestration and composition of functions within and across the MMIS	MITA-standard approach to orchestrating and composing services		
I.2 Standards-Based Data Exchange	G3	Ad hoc formats for data exchange	Structured formats for data exchange	Data exchange (internally and externally) using MITA standards		Data exchange (internally and externally) in conformance with MITA-defined semantic data standards (ontology-based)
1.3 Integration of Legacy Systems		Ad hoc, point-to-point approaches to systems integration	Structured, point-to-point and/or service enabled approaches to systems integration	Service-enabling legacy systems using MITA-standard service interfaces		
D.0 Data Management and Sharing						

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
D.1 Data Exchange Across Multiple Organizations	G5, G6	Manual data exchange between multiple organizations, sending data requests via telephone or e-mail to data processing organizations and receiving requested data in nonstandard formats and in various media (e.g., paper)	Electronic data exchange with multiple organizations via a MITA information hub using secure data, in which the location and format are transparent to the user and the results are delivered in a defined style that meets the user's needs	Electronic data exchange with multiple organizations via a MITA information hub that can perform advanced information monitoring and route alerts/alarms to communities of interest if the system detects unusual conditions		
D.2 Adoption of Data Standards	G3, O3	No use of enterprise-wide data standards	Data model that conforms to the MITA model and maps data exchanged with external organizations to this model	Data model that conforms all shared data used by a State Medicaid agency's business processes to the MITA model	Data model that conforms all shared data used by a State Medicaid agency's business processes to the MITA model and includes standards for clinical data and electronic health records	Data model that conforms all shared data used by a State Medicaid agency's business processes to the MITA model and that includes national standards for clinical data and electronic health records and other public health and national standards
P.0 Performance Measurement						
P.1 Performance Data Collection and Reporting	G2	Manual processes used, few predefined methods, requires extensive user intervention	Collect and report using predefined and ad hoc reporting methods and currently defined performance metrics	Define, implement, collect, and report using a set of business process-related performance metrics that conform to MITA-defined performance metrics	Generate alerts and alarms when the value of a metric falls outside limits	

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
P.2 Dashboard Generation	G2	Manual processes used, few predefined methods, requires extensive user intervention	Generate and display summary-level performance information (i.e., performance dashboards)	Generate and display summary-level performance information (i.e., performance dashboards) within a State Medicaid agency for all MITA-defined metrics		Generate and display summary-level performance information (i.e., performance dashboards) from external sources (e.g., other states and agencies) within a State Medicaid agency for all MITA-defined metrics
S.0 Security and Privacy						
S.1 Authentication	MM	Access to MMIS system capabilities via logon ID and password	Access to MMIS system capabilities via logon ID and password supporting industry best-practices such as requiring users to periodically change their password, mandatory characters sets, etc	User authentication using public key infrastructure in conformance with MITA-identified standards		
S.2 Authentication Devices		Authentication by entering logon ID and password	Authentication by entering logon ID and password - supporting single sign-on	Support for user authentication via kiosks based on fingerprints and delivery of results to authentication and authorization functions	Support for user authentication via SecureID tokens and delivery of results to authentication and authorization functions	Support for user authentication via kiosks based on retinal scans and delivery of results to authentication and authorization functions
S.3 Authorization and Access Control		Access to system resources are not consistently based upon user role	User access to system resources depending on their role at sign-on	User access to system resources based upon application and application level data elements based on defined access roles		

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
S.4 Intrusion Detection		Users manually monitor for abnormal activities without a defined method	Users manually monitor for abnormal activities using defined and documented methods	The system monitors for abnormal activity and alerts users for their manual intervention		
S.5 Logging and Auditing		Manual logging and analysis	Access to the history of a user's activities and other management functions, including logon approvals and disapprovals and log search and playback	Access to the history of a user's activities and other management functions with support for the auditing of record level transactions		
S.6 Privacy		Procedural controls to ensure privacy of information	Access restriction to functionality based on defined access roles	Access restriction to data elements based on defined access roles		
F.0 Flexibility – Adaptability and Extensibility						
F.1 Rules-Driven Processing	1. Determine Eligibility, Level 3 2. G4	Manual application of rules (and consequent inconsistent decision making)	Define sets of rules based on existing business processes and evidence based practices	Linking a defined set of rules into business processes or using applications executed with a Basic Rules Management System (often called a Rules Engine)		
F.2 Extensibility	G4	Extensions to system functionality that require pervasive coding changes	Update/extensions to system modules are managed and are planned, performed, measured, and controlled	Services with points at which to add extensions to existing functionality (changes highly localized)		

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
F.3 Automate Configuration and Reconfiguration Services	G4	Configuration and reconfiguration of distributed application that typically requires extensive hard-coded changes across many software components and/or applications across the enterprise (and with significant disruption)	Configuration and reconfiguration of distributed applications that use modular components within applications across the enterprise and with moderate disruption	Configuration and reconfiguration of distributed applications using services that require minimal hard-coded changes and with moderate disruption	Consistent distributed applications using common business change processes that coordinate between active components and ensure minimal disruption	Consistent distributed applications using common business change processes that coordinate between active components and ensure minimal disruption
F.4 Introduction of New Technology	O2, O5	Technology-dependent interfaces to applications that can be significantly affected by the introduction of new technology	Technology-dependent interfaces to applications that can be affected by the introduction of new technology, but that can easily be modified	Technology-neutral interfaces that localize and minimize the impact of the introduction of new technology (e.g., data abstraction in data management services to provide product-neutral access to data based on metadata definitions)		

Appendix B: Application System Inventories

Application System Inventory - Field Definitions	
Column Name	Description of Column Contents
Application Short Name	The common or abbreviated application name.
Application Full Name	The full name of the application with description as appropriate.
App Type (COTS, Custom, Hybrid)	The application is primarily COTS, custom coded, or a hybrid.
X = Transaction Processing	An X indicates the system is used to record transactional information.
X = Information Access	An X indicates the system is used to communicate information, for example using lists or maps.
X = End-User / Group productivity	An X indicates the system is used as a collaboration or group coordination tool.
X = Browser Delivery	An X indicates the system uses web browsers as the primary user interface.
Operating System & Platform	The OS and platform for operating the system.
Database	The database technology used by the system.
Language	The implementation language used by the system.
Data (Pers/PHI/FIN)	The system manages Personal, Health or Financial information.
Access Via (Inter/Intra/VPN)	Access to the system is via the Internet, Intranet or externally via VPN.
Scope (Bureau, Dept/Agency, Secretariat, Commonwealth)	The application's scope of use.
Year Installed	The year the system went live.
Number of IT Staff Assigned	The number of IT staff assigned, using fractional FTEs for part-time support.
Total Registered Users	The total number of end-users, indicating public access if appropriate.

(See next page for Inventory)

Application Short Name	Application Full Name	App Type (COTS, Custom, Hybrid)	X = Transaction Processing	X = Information Access	X = End-User / Group productivity	X = Browser Delivery	System Architecture = 2 Tier or 3 Tier	Operating System & Platform	Database	Language	Data (Pers/PHI/FIN)	Access Via (Inter/Intra/VPN)	Scope: Bureau, Dept/Agency, Secretariat, Commonwealth	Year Installed	Number of IT Staff Assigned	Total Registered Users	Systems Interfaced to
MHIS	Mental Health Information System	COTS/Customized	X	X	X			Windows Server 2003	Meditech C/S 5.5.5 - Proprietary	Proprietary	Pers/PHI/FIN		Agency	2000	20	~4000	MHIS DR, DMH Data Warehouse
CMS	Dept. of Mental Health Contract Management System	Custom	X	X		X	3 TIER	Windows 2003	SQL 2005	ASP	Pers/FIN	Intra	Agency	1999	1	50	
IA Real	Internal Affairs Case Management System	Custom	X	X			2 TIER	Windows 2003	SQL 2005	Visual Basic	PHI	Intra	Agency	1997	2	71	
CARE	Clinical Automated Record System for Southeast Area	Custom	X	X	X		2 TIER	Windows 2003	SQL 2005	MS Access	PHI	Intra	Agency	1995	2	400	
Licensing	Licensing	Custom	X	X	X		2 TIER	Windows 2003	SQL 2005	MS Access/SQL	Pers/PHI	Intra	Agency	2009	1	16	
Contract Monitoring/Performance Review	Contract Monitoring/Performance Review	Custom	X	X	X		2 TIER	Windows 2003	SQL 2005	MS Access	PHI	Intra	Agency	2010	1	100	
Legal BASE	Legal BASE	Custom	X	X	X		2 TIER	Windows 2003	Access 2003	MS Access	Pers/PHI	Intra	Agency	2011	1	24	
CUBP	CUBP/Rehab Tracking	Custom	X	X	X		2 TIER	Windows 2003	SQL 2005	MS Access	PHI	Intra	Agency	2002	1	45	
Firearms	Firearms	Custom	X	X			2 TIER	Windows 2003	SQL 2005	MS Access	PHI	Intra	Agency		1	4	
HOT	Homeless Outreach Team WebApp	Custom	X	X	X	X	3 TIER	Windows 2003	SQL 2005	VB.NET	PHI	Intra	Agency	2010	1	15	
Housing	Housing Inventory	Custom	X	X	X		2 TIER	Windows 2003	SQL 2005	MS Access		Intra	Agency		1	19	
Medication Occurrence/MAP	Medication Occurrence/MAP	Custom	X	X			2 TIER	Windows 2003	SQL 2005	Classic .ASP	PHI	Intra	Agency		1	4	
Campus Police Log	Campus Police Log	Custom	X	X	X	X	3 TIER	Windows 2003	SQL 2005	.NET	PHI	Intra	Agency	2010	1	31	
Replacement Units DB/Parkview	Replacement Units Database	Custom	X	X	X		2 Tier	Windows 2003	Access 2003	MS Access	PHI		Agency	1993	1	2	DMH Data Warehouse
DART	Referral Tracking System																
Restraints	Restraints & Seclusions Tracking																
DMH Outcomes	DMH Outcomes																
Inpatient Indicators	Inpatient Indicators																
Psychopharm Indicators	Psychopharm Indicators																
DMH Outcome Reporting	DMH Outcome Reporting																

Application Short Name	Application Full Name	App Type (COTS, Custom, Hybrid)	X = Transaction Processing	X = Information Access	X = End-User / Group productivity	X = Browser Delivery	System Architecture = 2 Tier or 3 Tier	Operating System & Platform	Database	Language	Data (Pers / PHI / FIN)	Access Via (Inter / Intra / VPN)	Scope: Bureau, Dept/Agency, Secretariat, Commonwealth	Year Installed	Number of IT Staff Assigned	Total Registered Users	Systems Interfaced to
Consumer & Family Satisfaction Survey	Consumer & Family Satisfaction Survey																
DIG Grant Reporting	DIG Grant Reporting																
Solution Set Support, e.g. Reporting and Interfaces																	
NewMMIS Interfaces	NewMMIS Interfaces	Custom		X				Windows Server 2004	SQL 2005	.NET, C#	Pers/PHI		Agency/Secretariat	2009	1	N/A	DMH Data Warehouse, NewMMIS
MHIS Downtime Application	MHIS Downtime Application	Custom		X				Windows Server 2005	SQL 2005	VB6	Pers/PHI		Agency	~2004	1	~250	MHIS
MRS	Management Reporting System based on the Commonwealth Warehouse	Custom		X		X	3 TIER	Windows 2003	SQL 2005	XML/XSLT/Java Script	PHI/FIN	Intra	Agency	2004	2	130	
Meditech Data Repository	MHIS data in accessible form (available only through AIT)	Custom	X	X			2 Tier	Windows 2003	SQL 2005	Meditech Magic / C/S 5.54 (proprietary)	PHI		Agency	2001	3	5	Meditech
DMH Data Warehouse	MHIS and BoPHF Meditech and other data in accessible form	Custom	X	X	X		3 Tier	Windows 2003	SQL 2005	Transact SQL	PHI/FIN		Agency	2003	4	560	DMH & BoPHF MHIS, CIW, Park view
INFORM	Prepared reports using data from the DMH Warehouse	Custom	X	X	X		2 Tier	Windows 2003	Access 2003	MS Access	PHI		Agency	2004	3	420	DMH Data Warehouse
Discharge Planning & Placement	Discharge Planning & Placement																
CBFS Provider Data Submission	CBFS Provider Data Submission	Custom	X	X	X		2 Tier	Windows 2003	SQL 2005	Transact SQL	PHI		Agency	2009	4		DMH Data Warehouse & Meditech
CBFS Outcomes	CBFS Outcomes	Custom	X	X	X		2 Tier	Windows 2003	SQL 2005	Transact SQL	PHI		Agency	2010	4		DMH Data Warehouse
ORYX Reporting	ORYX Reporting																
PDI	Provider Data Interface																
Forensic DBs	Forensic DBs																

Application Short Name	Application Full Name	App Type (COTS, Custom, Hybrid)	X = Transaction Processing	X = Information Access	X = End-User / Group productivity	X = Browser Delivery	System Architecture = 2 Tier or 3 Tier	Operating System & Platform	Database	Language	Data (Pers / PHI / FIN)	Access Via (Inter / Intra / VPN)	Scope: Bureau, Dept/Agency, Secretariat, Commonwealth	Year Installed	Number of IT Staff Assigned	Total Registered Users	Systems Interfaced to
Non-DMH Systems																	
CIW	Commonwealth Information Warehouse																
BoPHF Meditech	BoPHF Meditech																
BoPHF DR	BoPHF Meditech Data Repository																
EIM	Enterprise Invoice Management																
New MMARS	New MMARS	COTS / Customized	X	X	X	X	3 Tier		Netezza		Pers / FIN	intra	Commonwealth		n/a	n/a	EIM / CIW

Appendix C: Weighted Solution Sets

Application Short Name	Application Full Name	Solution Sets																			
		Service Determination	Registration, Intake, and Discharge	Service Coordination/Tracking	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Provider Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships	Executive Support
MHIS	Mental Health Information System	a	a	a	n	a	a	b	n	a	a	b	n	a	n	b	n	a	n	n	a
CMS	Dept. of Mental Health Contract Management System	n	n	b	n	n	n	n	n	b	n	n	n	n	n	n	n	a	n	n	a
IA Real	Internal Affairs Case Management System	n	n	n	n	n	n	n	n	n	n	n	n	n	a	n	n	n	n	n	a
CARE	Clinical Automated Record System for Southeast Area	a	a	a	a	a	a	b	n	n	n	b	n	n	n	n	n	n	n	n	a
Licensing	Licensing	n	n	n	n	n	n	n	n	n	n	n	n	n	n	a	n	n	n	n	n
Contract Monitoring/Performance Review	Contract Monitoring/Performance Review	n	n	b	n	b	n	n	n	n	n	a	n	n	n	n	a	n	n	n	a
Legal BASE	Legal BASE	n	n	n	n	n	n	n	n	n	n	n	n	a	n	n	n	n	n	n	n
CUBP	CUBP/Rehab Tracking		n	a	a	b	n	n	n	n	n	n	n	n	n	n	n	n	n	n	b
Firearms	Firearms	n	n	n	n	n	n	n	n	n	n	b	n	n	n	n	n	n	n	n	n
HOT	Homeless Outreach Team WebApp	n	n	a	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Housing	Housing Inventory	n	n	b	n	b	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Medication Occurrence/MAP	Medication Occurrence/MAP	n	n	n	n	n	n	n	n	n	n	n	n	n	a	n	a	n	n	n	b
Campus Police Log	Campus Police Log	n	n	b	n	n	n	n	n	n	n	n	n	n	a	n	n	n	n	n	n

Application Short Name	Application Full Name	Solution Sets																			
		Service Determination	Registration, Intake, and Discharge	Service Coordination/Tracking	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Provider Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships	Executive Support
Replacement Units DB/Parkview	Replacement Units Database	n	a	n	n	n	n	n	n	n	n	n	n	b	n	n	n	n	n	n	0
DART	DMH Admissions and Referral Tracking System	a	b	b	n	b	n	n	n	n	n	b	n	b	n	n	n	n	n	n	a
Restraints	Restraints & Seclusions Tracking	n	n	n	n	b	n	n	n	n	n	n	n	n	n	n	n	n	n	n	a
DMH Outcomes	DMH Outcomes	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	a	n	n	n	a
Inpatient Indicators	Inpatient Indicators	n	n	n	n	b	n	n	n	n	n	n	n	n	n	n	n	n	n	n	a
Psychopharm Indicators	Psychopharm Indicators	n	n	n	n	a	n	n	n	n	n	n	n	n	n	n	n	n	n	n	a
Discharge Planning & Placement	Discharge Planning & Placement	n	b	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	b
Consumer & Family Satisfaction Survey	Consumer & Family Satisfaction Survey	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	b	n	n	n	a
DIG Grant Reporting	Data Infrastructure Grant (DIG) Reporting	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	a
PDI	Provider Data Interface	a	a	a	n	b	n	n	n	a	a	n	n	n	n	n	b	n	n	n	b
Forensic DBs	Forensic DBs	n	n	n	n	n	n	n	n	n	a	a	n	a	n	n	n	n	n	n	a
User Maintained Spreadsheets	User Maintained Spreadsheets	b	a	a	a	a	b	b	b	b	a	b	a	a	a	b	a	a	n	n	b
User Maintained Access Apps.	User Maintained Access Apps.	b	a	n	a	a	n	b	n	n	n	n	a	n	b	n	b	a	n	n	b
Solution Set Support, e.g. Reporting and Interfaces																					

Application Short Name	Application Full Name	Solution Sets																			
		Service Determination	Registration, Intake, and Discharge	Service Coordination/Tracking	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Provider Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships	Executive Support
NewMMIS Interfaces	NewMMIS Interfaces	b	n	n	n	n	n	n	n	n	n	a	n	n	n	n	n	n	n	n	n
MHIS Downtime Application	MHIS Downtime Application	n	b	n	n	b	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
MRS	Management Reporting System based on the Commonwealth Warehouse	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	b	n	n	a
Meditech Data Repository	MHIS data in accessible form (available only through AIT)	b	b	b	n	b	b	n	n	b	b	n	n	b	n	n	n	n	n	n	b
DMH Data Warehouse	MHIS and BoPHF Meditech and other data in accessible form	b	b	b	n	b	b	b	n	a	b	a	n	b	b	b	b	b	n	n	b
INFORM	Prepared reports using data from the DMH Warehouse	a	a	a	n	a	a	a	n	a	a	a	n	a	n	n	a	b	n	n	a
CBFS Provider Data	CBFS Provider Data	n	n	a	n	b	n	n	n	n	n	n	n	n	n	n	a	n	n	n	n
CBFS Outcomes	DMH Outcomes	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	a	n	n	n	a
ORYX Reporting	ORYX Reporting	n	n	n	n	n	b	n	n	n	n	n	n	n	n	a	n	n	n	n	n
DMH Outcome Reporting	DMH Outcomes	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	a	n	n	n	a
Non-DMH Systems																					
CIW	Commonwealth Information Warehouse	n	n	n	n	n	n	n	n	b	n	n	n	n	n	n	n	a	n	n	a
BoPHF Meditech	BoPHF Meditech	n	a	a	n	a	a	b	b	n	n	a	n	a	n	n	n	n	n	n	a

		Solution Sets																			
Application Short Name	Application Full Name	Service Determination	Registration, Intake, and Discharge	Service Coordination/Tracking	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Provider Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships	Executive Support
BoPHF DR	BoPHF Meditech Data Repository	b	b	b	n	b	b	n	n	b	b	n	n	b	n	n	n	n	n	n	b
EIM	Enterprise Invoice Management	n	n	b	n	n	n	n	n	a	a	n	n	n	n	n	n	n	n	n	n
New MMARS	New MMARS	n	n	n	n	n	n	n	n	a	n	n	n	n	n	n	n	a	n	n	a

Commonwealth of Massachusetts
Executive Office of Health and Human Services
Next Generation System Planning Project

Bureau of Public Health Facilities (BoPHF)
Technical Capability Matrix
Deliverable 7C

(Based on MITA SSA-Version 2.0)

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Erin Ferrari, Project Manager
The Commonwealth of Massachusetts
Executive Office of Health and Human Services
One Ashburton Place, 11th Floor
Boston, MA 02108
erin.ferrari@state.ma.us

Charlie Leadbetter, Project Principal/Project Manager
BerryDunn
100 Middle Street, PO Box 1100
Portland, ME 04104-1100
cleadbetter@berrydunn.com



Technical Capability Matrix (TCM) Draft Version

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Executive Summary

This Technical Capability Matrix (TCM) report is intended to serve The Commonwealth of Massachusetts Executive Office of Health and Human Services (EOHHS) and its Agencies to define the current state of their technical environment and to formalize the desired future state of their technical environment. As the Bureau of Public Health Facilities (BoPHF) strives to improve their technical environment in support of their day-to-day business, it is imperative that the current environment is objectively understood and documented. This report informs BoPHF leadership with a level of detail necessary to support effective planning for an optimized future state. As a source document, this report is a key artifact in the planning and creation of the RFI and subsequent RFR(s), leading to the implementation of a comprehensive MITA-compliant solution.

The Centers for Medicare & Medicaid Services (CMS), through its Medicaid Information Technology Architecture (MITA), provides a framework and guidance for states to assess capabilities and maturity across business, information and technical architectures. Specifically, the Technical Capability Matrix (TCM) within MITA is intended to assist states in the assessment of their levels of technical capability and maturity. The TCM provides a mechanism that allows a state to systematically mature the enterprise to keep up with the constantly changing world of technology.

The TCM team comprised of BerryDunn, the Commonwealth and BoPHF has successfully collaborated and completed the TCM assessment. As a guiding principle for this activity, the TCM team orchestrated the technical assessment from a business perspective, whereby the business process/architecture provided the baseline to drive the technical architecture, thus preserving the concept that technical capabilities are enablers of business processes.

The assessment indicates that although the BoPHF technical landscape is functional, it is primarily a legacy environment and is a candidate for improvement. This is indicated by the average range of score from 1.0 to 1.6 on a scale of 1.0 to 5.0 as depicted below in Figure 1.

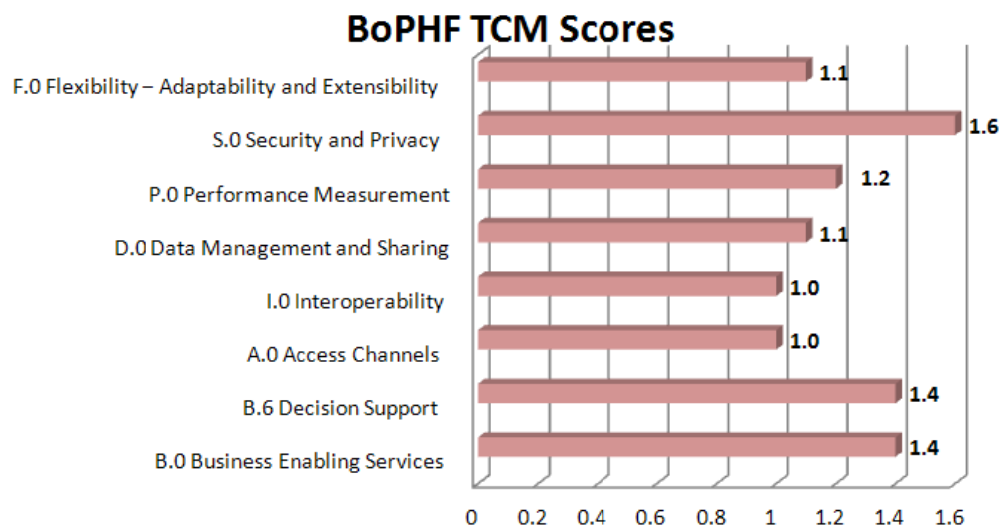


Figure 1: BoPHF TCM Average Scores by Technical Area (Scale = 1.0 – 5.0)

At the core of BoPHF's technology environment is a customized Commercial-off-the-Shelf (COTS) product from MEDITECH that was implemented in 2002. Although MEDITECH is modular in design, it does not meet generally accepted Service Oriented Architecture (SOA) principles. Furthermore, BoPHF's technical environment receives support via a large variety of user maintained Microsoft Excel spreadsheets and Microsoft Access databases that are not typically considered enterprise standard.

The TCM team created and aligned technical "Solution Sets" based on the MITA and state specific business processes. The Solution Sets were assembled based on the BoPHF supporting applications and systems and assessed in accordance with the TCM definitions of technical maturity. This approach produced a valuable, contextual alignment of business and technology, and will enable BoPHF to maintain this alignment across targeted business and technical improvements as it moves forward in its improvement endeavors.

With respect to the TCM categories and technical areas, there are several key themes that were derived from the assessment. Of note, there are technical areas that are fundamentally addressed well including Security and Privacy, Business Enabling Services and aspects of Decision Support. The Security and Privacy category averaged the highest score among the eight (8) TCM measures with a score of 1.6. The security and privacy methods implemented across BoPHF seem to adhere to industry acceptable security and privacy guidance. Business Enabling Services scored 1.4, next to highest amongst the eight (8) measurement areas. Business Enabling Services primarily measures Workflow Management, Form Management such as online data entry, and Business Process/Relationship Management. The higher scores seen in this technical area were largely due to the capabilities of the primary BoPHF system – MEDITECH – that provides capability for efficiencies in form management, workflow and application module level configurations. BoPHF has also implemented supporting applications that enhanced Solution Set scoring such as the use of COTS tools that enable performance metrics and users to automate the running, sharing and storing of reports.

The areas that are under-served include Access Channels, aspects of Interoperability and Flexibility – Adaptability and Extensibility. Access Channels or those points of entry for providers, clients, and staff such as web portals, browsers, kiosks, voice response systems, or mobile phones are limited today and scored a 1.0 average. Again, based on the technical architecture prevalent in the BoPHF environment, the scores of Interoperability and Flexibility – Adaptability and Extensibility were expectedly low and are suggested as core areas to address in the "to-be" future state.

While this report primarily serves to support the current state assessment of the BoPHF technical environment within the context of the MITA TCM, [Section 4.0 – Recommendations](#) provides some context for leadership to consider as it moves forward into envisioning, planning and defining requirements for the future state.

1.0 Purpose

1.1 Background

Within the Bureau of Public Health Facilities, are four (4) multi-specialty hospitals and the State Office of Pharmacy Services (SOPS). The hospitals provide acute and chronic hospital medical care to individuals for whom community services are not available or access to health care is restricted. Through a combined focus on delivery of health care services to special populations, education and research, the public health hospitals serve as a catalyst for change in the health care system by developing and modeling new treatment programs and responding to emerging health care needs of the citizens of the Commonwealth. These services are delivered through:

Lemuel Shattuck Hospital (LSH) is a 255 bed facility providing acute, sub-acute and ambulatory care to patients referred primarily by public agencies and private health care providers. Additionally, the Shattuck operates 26 subspecialty outpatient clinics, all but the most tertiary surgical services, and a full array of radiological imaging and clinical laboratory services.

Massachusetts Hospital School (MHS) is a 110 bed facility providing medical, habilitative, rehabilitative, recreational, educational and vocational services to children and young adults with multiple disabilities, assisting them to achieve their maximum level of independence in all aspects of life. MHS is in the process of expanding the current census from 75 to 105 beds.

Tewksbury Hospital (TKH) is a 540 bed facility providing comprehensive treatment, care, and comfort to adults with chronic medical and mental illnesses.

Western Massachusetts Hospital (WMH) is a 100 bed long term medical and specialty care hospital providing both acute and chronic hospital care to patients with a variety of chronic diseases.

State Office for Pharmacy Services (SOPS) provides comprehensive pharmacy services to public sector healthcare organizations in a cost-effective, clinically responsible manner. The Office practices "state-of-the-art" pharmacy delivery; establishes up to date clinical pharmacy practice; assures full regulatory compliance; implements and maintains the latest pharmacy computer software; and provides for all aspects of budgeting and purchasing including reporting, forecasting, and accounts payable. The State Office for Pharmacy Services is dedicated to meeting the healthcare needs of agencies within the Commonwealth with a comprehensive and unique pharmacy program.

For more information about the BoPHF Bureau of Public Health Facilities, please reference: [Bureau of Public Health Facilities \(BoPHF\) Home Page](#)

1.2 Current Technical Environment

The primary system that supports the day-to-day business functions of the Bureau of Public Health's facilities is the MEDITECH system. MEDITECH is a Commercial-of-the-Shelf (COTS) product running on a Magic database that was implemented at BoPHF in 2002. This system supports approximately 2,500 users. MEDITECH is a primary system that provides technical solutions (Solution Sets) to BoPHF staff's daily business needs such as:

- Enrollment/Registration, Intake, and Discharge
- Service Coordination, Tracking, and Communication
- Scheduling
- Care Planning and Treatment
- Medical Record Management
- Information Privacy and Security
- Claims, Billing and Financial Processing
- Service Delivery Data from Contracted Providers
- Manage Consumer Funds
- Legal, Forensic and Guardianship

Besides MEDITECH, BoPHF is reliant upon shared files/folders on the internal BoPHF network. The maturity level of much of this network information directly relates to those active directory permissions inherent to those users that access these files. Other than shared network files, user maintained access databases, or spreadsheets BoPHF relies on a combination of supporting secondary systems to meet their business needs.

Given that the BoPHF technical environment is shared amongst four (4) multi-specialty hospitals, it's important to recognize that not all systems are utilized at each of the facilities (See *Appendix C for use by facility*). For example, The Pharmacy Information System (PIS) assists with patient care as it is used by the State Office for Pharmacy Services for their pharmacy activates. There is also a laboratory interface to the University of Massachusetts (UMASS) that helps support BoPHF's laboratory activities.

Three (3) supporting or secondary systems in concert with one another help to support BoPHF in their daily care planning/treatment activities. These are Carestream Health, Infinitt Photographic Archiving Computer Systems, and Abbott Blood Glucose Monitoring Systems. Each of these systems interfaces to the primary MEDITECH system and indirectly supports the overall BoPHF technical solution. Similarly, Stallate Harmonie (EEG) System and Phillips Trace Master VUE (EKG) help support the care planning and treatment Solution Sets.

The Policy Tech application supports the management of facility policy and procedures for two (2) BoPHF sites. A program called GeriMenu (utilized by the food services vendor) is a secondary system used to plan residents' meals and offers management tools to help manage their dietary needs. BoPHF also relies upon some state level applications, such as the new Medicaid Management Information System (NewMMIS) and the state accounting applications (MMARS/BAR).

1.3 TCM Overview

The Centers for Medicare & Medicaid Services (CMS), through its Medicaid Information Technology Architecture (MITA), provides a framework and guidance for states to assess capabilities and maturity across business, information and technical architectures. Specifically, the Technical Capability Matrix (TCM) within MITA is intended to assist states in the assessment of their levels of technical capability and maturity. This assessment, in conjunction with the Business Capability Matrix (BCM), will help Massachusetts identify their current state and plan their future business and technical architecture. CMS describes the TCM as, "... a mechanism that allows a state to systematically mature their enterprise to keep up with the constantly changing world of technology." It is important to point out that technical capabilities enable business capabilities and that the "business should drive technology".

The purpose of the TCM is to describe the boundaries and behavior of each technical area in the context of the increasing levels of the maturity. This TCM analysis by the Commonwealth of Massachusetts is based upon the Medicaid IT Architecture (MITA) 2.0 framework available at the start of this project. This project is unique in that it is not being conducted at the Medicaid enterprise-level, but rather is focused upon the current technologies within three (3) departments: Mental Health, Developmental Services, and Public Health (DHM, DDS, and BoPHF respectively).

As the MITA Framework continues to evolve (e.g. version 3.0 due out in the coming months), it encourages growth and transformation by illustrating the benefits of improving state operations and provides tools to help states achieve that transformation. States will be active participants in refining the definition of capabilities for each level. States will identify capabilities that meet their business needs: Some capabilities will be selected from the MITA TCM, and others will be new capabilities created by the state. These new capabilities will be added to the MITA TCM (in accordance with MITA procedures) and will be available for other states to use. There are 33 technical capability definitions within the first three (3) levels of maturity of the TCM that are yet to be defined by CMS. Because of this the BerryDunn team created definitions for these capabilities in an effort to increase precision of the assessment. The final Matrix used for this project can be seen in *Appendix A: Technical Capability Matrix Template*. The 33 definitions created by the BerryDunn team are highlighted in yellow in section 2.2.

Additionally, a decision to escalate the technical area of B.6 (Decision Support) from a sub-category to a parent-category was made. This decision was based on the importance and nature of this technical area. Business Enabling Services without the delineation includes eleven (11) technical areas that out-scale other similar categories such as Interoperability, Data Management and Sharing, and Performance Measurement which all include only two (2) technical areas. The eight (8) technical categories are listed below.

- (1) B.0 Business Enabling Services
- (2) B.6 Decision Support
- (3) A.0 Access Channels
- (4) I.0 Interoperability
- (5) D.0 Data Management and Sharing
- (6) P.0 Performance Measurement
- (7) S.0 Security and Privacy
- (8) F.0 Flexibility – Adaptability and Extensibility

The BerryDunn team has incorporated the use of "Solution Sets" throughout the TCM analysis and assessment. Solution Sets are logical groupings of BoPHF systems and applications that

support a specific business function. This approach introduces alignment to the specific business processes of the Business Capability Matrix (BCM), including State Specific Processes (SSPs). The discipline of cross-walking the TCM to the BCM enhances the overall assessment by providing a direct correlation between those applications, systems, and their technologies and the correlating business processes they support. The full cross-walk can be found in: *Section 2.4*.

Solution Sets:

- | | |
|---|--|
| 1. Service Determination | 13. Manage Consumer Funds |
| 2. Eligibility | 14. Legal, Forensic, and Guardianship |
| 3. Enrollment/Registration, Intake, and Discharge | 15. Incident Management |
| 4. Service Coordination and Tracking (and Communication) | 16. Accreditation and Licensing |
| 5. Scheduling | 17. Quality Management |
| 6. Care Planning and Treatment | 18. Provider and Contractor Management and Procurement |
| 7. Medical Record Management | 19. Program Management |
| 8. Information Privacy and Security | 20. Manage Policy and Goals |
| 9. Order Entry, Laboratory, and Pharmacy | 21. Establish and Manage Business Relationships |
| 10. Claims, Billing and Financial Processing | 22. Infrastructure and IT |
| 11. Service Delivery Data from Contracted Providers | 23. Executive Support |
| 12. Interagency Coordination for Shared Client Services | |

To support the Solution Set construction, a high-level analysis of the detailed systemic environment was performed. The BerryDunn team facilitated sessions to identify and inventory the applications and systems that are currently used within the department. A conceptual weight for each of the applications and systems was determined in the context of how significantly each contributes to the respective Solution Set. Subsequently, in the context of the Solution Set assessment and scoring, these applications and systems were further analyzed and influenced the Solution Set score based on their relative weight based on aspect and ratio (e.g. supports more users, more transactional volume, demands more day-to-day user processing time.) The full list of system inventories can be seen in *Appendix B: Application System Inventories*. This list of inventory captures pertinent details, such as the number of users, year installed, system architecture tiers, etc. The initial weighting of applications as primary, secondary, or non-applicable support systems can be seen in *Appendix C: Weighted Solution Sets*.

2.0 Methodology

2.1 Approach

The BerryDunn team met with the Massachusetts project manager in early August, 2011 to discuss the TCM plan, schedule, approach and upcoming kick-off materials. After some internal review and revision BerryDunn reissued the TCM materials to the Commonwealth project manager on August 31, 2011. Most notably, the BerryDunn team created language for those blank definitions within the CMS issued TCM. The Massachusetts project manager agreed that having consistent and defined metrics that would be used throughout the project including across agencies was a critical to accurately capturing the TCM scoring and rationale. The project manager also reviewed the kick-off presentation that was then later used by BerryDunn to kick-off the TCM meetings with BoPHF TCM leads and their designated staff.

As a remote activity, the BoPHF TCM leads and their staff compiled an inventory of their applications/technology so that these systems could later be understood in their support (primary or secondary) to that of a specific technical solution of a business need.

Prior to holding agency specific meetings, BerryDunn held preparatory teleconferences with the BoPHF TCM team to ensure clarity of the language and terms of the TCM, the concept of solution sets, and to finalize system/application inventories for each agency. This was completed as a prerequisite to holding the TCM scoring sessions given those sessions would likely use up all available time due to the large volume of scores being captured (32 TCM metrics x 23 solution sets or 736 scores to capture).

The kick-off meeting was held with BoPHF during the week of September 12, 2011 in which solution sets were further defined and a cross-walk was created that aligned solution sets to their supporting applications. Another cross-walking effort also took place that aligned the Business Capacity Matrix (BCM) and State Specific Processes (SSPs) to the TCM.

Lastly, during the first week of October, the assessment and scoring session was held with BoPHF that focused specifically on ranking the solution sets within the TCM. The session was initiated by reviewing the definitions of each of the solution sets, discussing their respective applications and systems and then processing each within the context and guidance of the TCM.

The remainder of Section 2.0 is organized by this approach and the activities that BerryDunn processed for this TCM project:

- **Technical Capability Matrix Update**
- **Solution Set Creation**
- **Alignment of Business Processes**
- **Inventory Applications/Technology**
- **Alignment and Modeling**
- **Assessment and Scoring**

2.2 Technical Capability Matrix Update

During this step, the TCM was updated to address the incomplete nature of the TCM. Within the TCM of MITA 2.0, there are gaps in the definition of capabilities for specific technical areas and levels of maturity. For example, for “B.3 Business Process Management”, the TCM provides maturity definitions Level-1 and Level-3, but not Level-2. The BerryDunn team, in collaboration with the Commonwealth’s Project Manager, made the decision to address these gaps. The goal of this decision was to attain a higher level of precision for the assessment. The BerryDunn team recommended one (1) set of definitions be developed for use by all three (3) agencies. The Commonwealth’s Project Manager supported this approach and indicated that definitions needed to be developed for Levels 1, 2 and 3 only.

In order to create the definitions for the undefined capabilities, the BerryDunn team followed the high-level guidance from the Human Services Research and Technology Institute (HSRTI) for the progression of maturity (Figure 2 below.)

Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
<i>Performed</i>	<i>Managed</i>	<i>Defined</i>	<i>Quantitatively Managed</i>	<i>Optimized</i>
Performed processes are generally informal, they are not institutionalized and improvements are frequently short-lived.	Managed processes are planned by the organization. These processes are supported by formal policies and qualified staff, and are managed according to referenced process objectives.	Defined processes are managed processes that are tailored by the organization to support a particular business / operating unit. These process descriptions include more detail, are managed more proactively and recognize a higher level of process interactions.	Quantitatively managed processes are defined processes that are enhanced by using statistical and related analytical methods.	Optimized processes are qualitatively managed processes that focus on understanding the root cause relationships between and within specified processes. These process efforts emphasize continuous improvement within and across processes.

Figure 2: Guidance to create capability definitions

In addressing the 33 undefined capabilities within the TCM, the BerryDunn team encountered blank definitions for each level of capability (1.0, 2.0, and 3.0). To explain the logic, the below example, “B.1 Forms Management” provided Level 1 and Level 2 definitions, but failed to address Level 3. To address this gap, the BerryDunn team followed the HSRTI guidance and utilized the defined levels taxonomies (1 and 2) trends to create the Level 3 definition. A similar, consistent approach was utilized for missing Level 1 and Level 2 definitions. An example of each is provided below in Figure 3, where the original TCM had previously been blank for the cells highlighted in yellow. All other definitions are CMS original definitions. The newly created definitions appear in yellow highlight and can be seen throughout the TCM. (See: *Appendix A Technical Capability Matrix Template*.)

Technical Area/Technical Function	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities
B.1 Forms Management	Manual data entry on hardcopy forms	Online data entry on electronic forms	Partially automated processes that merge known data into the forms and requires minimal electronic data entry

Technical Area/Technical Function	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities
B.3 Business Process Management (BPM)	Manual, by user (core services and accompany valued defined, infrastructure in place)	Processes are planned and executed in accordance with policy and are monitored, controlled, and reviewed	Specification and management of business processes in conformance with MITA BPM standards (e.g., Business Process Execution Language [BPEL])
P.1 Performance Data Collection and Reporting	Manual processes used, few predefined methods, requires extensive user intervention	Collect and report using predefined and ad hoc reporting methods and currently defined performance metrics	Define, implement, collect, and report using a set of business process-related performance metrics that conform to MITA-defined performance metrics

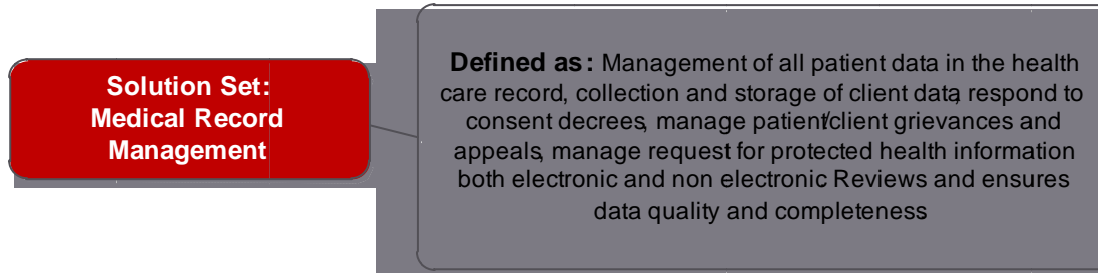
Figure 3: TCM newly defined capabilities highlighted in yellow

The BerryDunn team revised the TCM definitions and circulated the revised TCM to the BerryDunn team leads for review and comment. The final draft was presented to the Commonwealth Project Manager and a technical representative from ITD on August 31, 2011. Several additional comments were received from the Commonwealth and incorporated into the final TCM.

The BerryDunn team used this updated TCM with BoPHF during the week of September 12, 2011. Of the 33 definitions that the BerryDunn team created, only one (1), S.3 “Authorization and Access Control” required modification after being “field tested” by the TCM team during the assessment and scoring sessions.

2.3 Identify Solution Sets

During this step, Solution Sets were created by the TCM team based on related functional business processes as depicted below in the Medical Record Management Example:



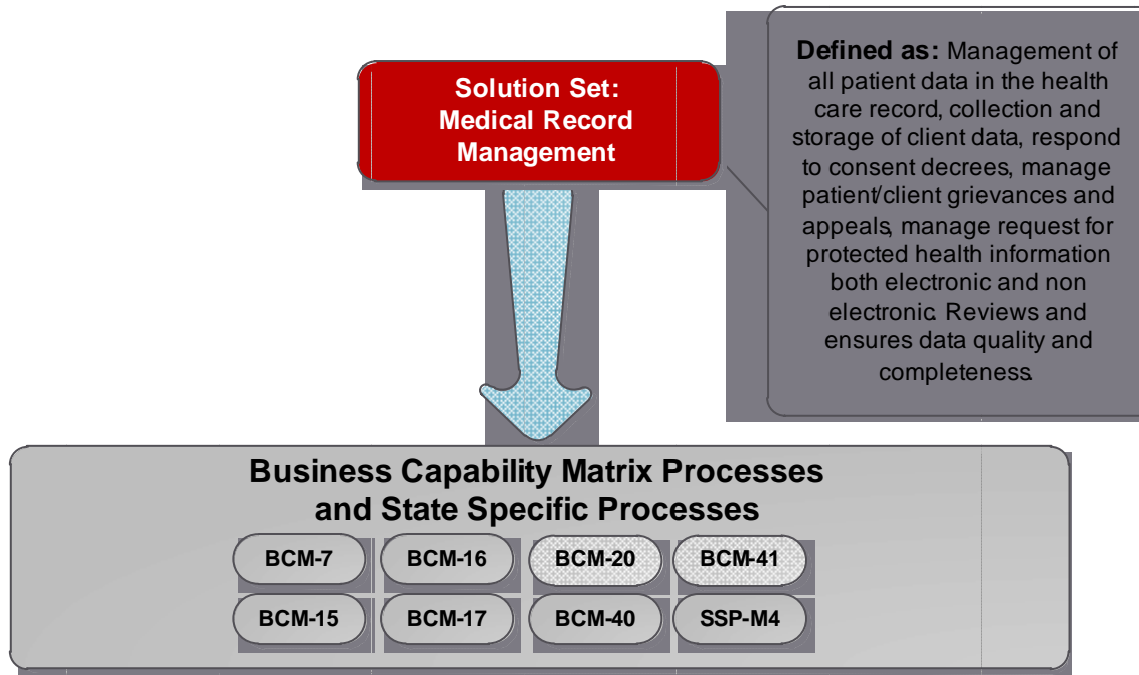
Twenty-three (23) Solution Sets were created and defined:

Solution Set Name	Functional Summary
Service Determination	Determine appropriateness for services; determine what services are needed and if they are available.
Eligibility	Determine eligibility, manage disallowances, manage all eligibility communications, manage all waivers, grievances and appeals related to eligibility. Manage program wait lists.
Enrollment/Registration, Intake, and Discharge	Intake screening, registration and admission, suspend/disenroll/discharge, track program capacity and censuses, manage demographic data
Service, Coordination/Tracking, and Communication	Coordination of Care delivery, Communication protocols, Patient/Client communication, coordination of discharge services and follow up care, referral authorization management, Manage individual service prioritization, manage individual allocations and service budgets, manage waitlists for programs, manage individual transportation information
Scheduling	Manage staff scheduling, manage timekeeping and payroll, patient scheduling, resource scheduling, group scheduling.
Care Planning and Treatment	Initial screening and assessment, treatment planning. Complete documentation of patient care using federal and state criteria, rules, best practices and professional judgment. Coordination of care delivery, discharge planning, managing patient outcomes, develops and manages individual service plans. Evaluate and document patient risk, restraint documentation and reporting of all patient care data as needed.
Medical Record Management	Management of all patient data in the health care record, collection and storage of client data, respond to consent decrees, manage patient/client grievances and appeals, manage request for protected health information both electronic and non electronic. Reviews and ensures data quality and completeness.
Information Privacy and Security	Manage compliance to privacy, security and confidentiality standards and regulations. Secure communications to meet confidentiality and legal requirements, security audits. Access based on role and level of authorization. Ensures all health information is protected.
Order Entry, Laboratory, and Pharmacy	Manage order entry, manage laboratory, and manage pharmacy services.
Claims, Billing and Financial Processing	Fiscal monitoring of patient/client, contractor services, program financial management, management position control, recruitment, accounting, 1099's, payroll, purchasing, accounts payable, revenue cycle, reimbursement, budget management and formulation, claims generation, auditing, mass adjustment, inquire payment status, manage recoupment, collections and recovery, authorize referrals and service, manage state fund, manage client specific service funds, generate financial and program analysis.
Service Delivery Data from Contracted Providers	Track patient data from contracted providers about quantity, type of service, delivered to individuals or groups storage of health care information.

Solution Set Name	Functional Summary
Interagency Coordination for Shared Client Services	Create and manage business relationships, engage in joint planning. Cross agency communication of patient information including sharing of aggregate data for the purpose of utilization management and performance monitoring.
Manage Consumer Funds	Manage individual patient funds not related to treatment.
Legal, Forensic, and Guardianship	Document patient legal status, duty to warn, Roger's orders, forensic and guardianship data. Manage ongoing and potential legal cases/actions. Document and track risk evaluations. Coordinate and liaise with investigating agencies. Manage provider contracts. Manage client information policy. Respond to consent decrees. Manage patient grievance and appeals process.
Incident Management	Initiate and manage case and event reporting. Manage incident reporting. Manage medication occurrence reporting. Provide reporting on all incident types (including medication, restraint and other types).
Accreditation and Licensing	Manage program/providers surveys and certification. Manage accreditation and credentialing necessary for program participation. Monitor performance utilizing measures for accreditation and credentialing. Manage licensing of contracted providers.
Quality Management	Manage waiver programs provider qualifications, ensure program compliance as agreed upon with Medicaid, Manage monitoring of national core indicators and performance measures, Manage/monitor provider quality performance and compliance with standards. Conduct routine fiscal and clinical monitoring of patient outcomes and expenditures from a quality standpoint. Initiate, and manage case or event and subsequent incident reporting. Manage grievance and appeals process. Help to identify areas for improvement so preventive activities can be conducted. Perform contractor/provider outreach and training to ensure quality standards are defined. Allow for quality reporting.
Provider and Contractor Management and Procurement	Manage provider/contractor procurement, awarding contracts, develop contracts, register providers/contractor, manage provider/contractor information, and close out contracts. Manage provider/contractor communications and grievance and appeals process, provide training and perform audits. Address requests for contractor/provider information. Monitor patient outcomes. Provide a provider listing of available providers to deliver services in support of participant direction. Manage transportation providers. Track participant driven budget. Manage budget billing and reimbursement for provider contracts.
Manage Policy and Goals	Develop and maintain program policy, agency goals and initiatives. Maintain state plan.
Establish and Manage Business Relationships	Create and manage business relationships, facilitate communication with business relationships. Engage in joint planning to coordinate efforts and programs between agencies. Develop and maintain program policy and agency goals. Terminate business relationships.
Infrastructure and IT	Manage information with respect to infrastructure and information technology including but not limited to computer devices, network topology, software, and other hardware/physical assets.
Executive Support	Reporting capability to support executive decisions and monitor all business process areas including but not limited too; population management, resource management, financial, quality, incident reporting, contract management, productivity etc.

2.4 Alignment of Business Processes

During this step, the TCM team aligned Solution Sets to the identified business processes within the BCM as depicted below in the Medical Record Management example:



As described previously, this multi-directional alignment provides valuable information to BoPHF to address targeted business and technical improvements. The following table illustrates the alignment.

Solution Sets	BCM and SSP: Related Business Processes
Eligibility	7, 21, M1
Enrollment/Registration, Intake, and Discharge	15, 21, 22, 24, 26, M2
Service Coordination, Tracking, and Communication	14, 25, 26, M51
Scheduling	31, 34
Care Planning and Treatment	23, 24, 25, 26, 27
Medical Record Management	7, 15, 16/41, 17, 20, 40
Information Privacy and Security	14, 15, 16/41, 17, 40
Order Entry, Laboratory, and Pharmacy	25, 26, 27
Claims, Billing and Financial Processing	4, 7, 29, 30, 32, 34, 37, 38, 39, 40, M51
Service Delivery Data from Contracted Providers	40
Interagency Coordination for Shared Client Services	9, 10, 11
Manage Consumer Funds	n/a
Legal, Forensic, and Guardianship	9, 14, 15, 16/41, 17, 20, 51
Incident Management	1, 2, 3
Accreditation and Licensing	6, 8
Quality Management	1, 2, 3, 4, 5, 6, 20, 27, 28
Provider and Contractor Management and Procurement	27, 43, 44, 45, 46, 47, 51
Manage Policy and Goals	55
Establish and Manage Business Relationships	9, 10, 11
Infrastructure Support and IT	61, 62, 64

Solution Sets	BCM and SSP: Related Business Processes
Executive Support	3, 4, 5, 6, 20, 25, 29, 30, 38, 39, 55

2.5 Inventory Applications/Technology

During this step, department specific applications and systems that support the business processes within the BCM were identified and inventoried as depicted below in the Medical Record Management example:

Consistent with the process, this dimension of the alignment provides clarity to what the applications (or technology) environment consists of and how it enables the business processes. Key attributes such as the number of users that use the system, the system's age, and the type of data handled have been captured as outlined below.

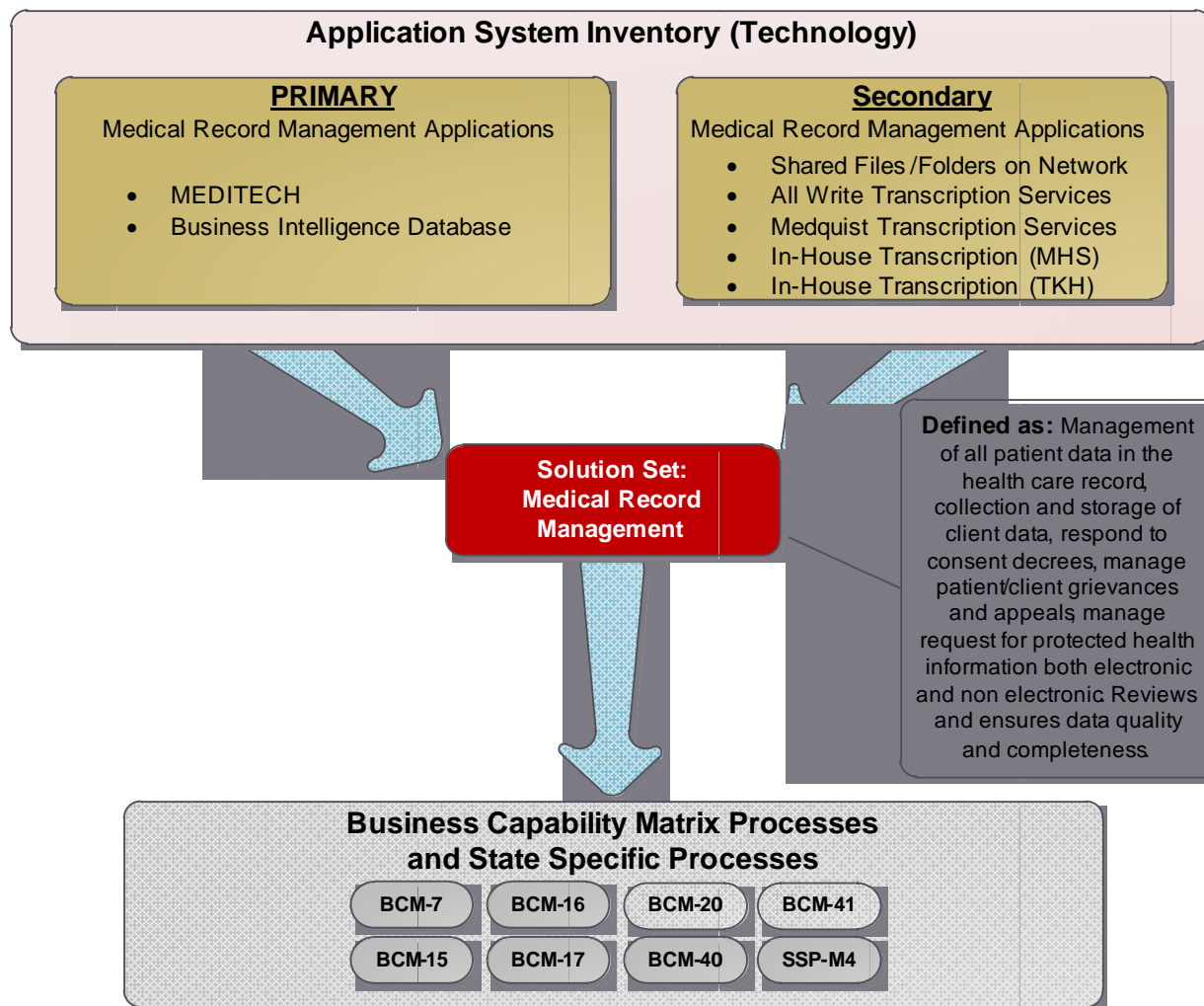
Application System Inventory – Field Definitions	
Column Name	Description of Column Contents
Application Short Name	The common or abbreviated application name.
Application Full Name	The full name of the application with description as appropriate.
App Type (COTS, Custom, Hybrid)	The application is primarily COTS, custom coded, or a hybrid.
X = Transaction Processing	An X indicates the system is used to record transactional information.
X = Information Access	An X indicates the system is used to communicate information, for example using lists or maps.
X = End-User/Group productivity	An X indicates the system is used as a collaboration or group coordination tool.
X = Browser Delivery	An X indicates the system uses web browsers as the primary user interface.
Operating System & Platform	The OS and platform for operating the system.
Database	The database technology used by the system.

Application System Inventory – Field Definitions	
Column Name	Description of Column Contents
Language	The implementation language used by the system.
Data (Pers/PHI/FIN)	The system manages Personal, Health or Financial information.
Access Via (Inter/Intra/VPN)	Access to the system is via the Internet, Intranet or externally via VPN.
Scope: Bureau, Dept/Agency, Secretariat, Commonwealth	The application's scope of use.
Year Installed	The year the system went live.
Number of IT Staff Assigned	The number of IT staff assigned, using fractional FTEs for part-time support.
Total Registered Users	The total number of end-users, indicating public access if appropriate.

The full Inventory of Applications/Technology can be seen in: Appendix B: Application System Inventories

2.6 Alignment and Modeling

During this step, the TCM team aligned the application and system inventory to the Solution Sets. Each application and systems relative contribution to the Solution Set was discussed and assessed to establish the Solution Set model for scoring as depicted below in the Medical Record Management example:

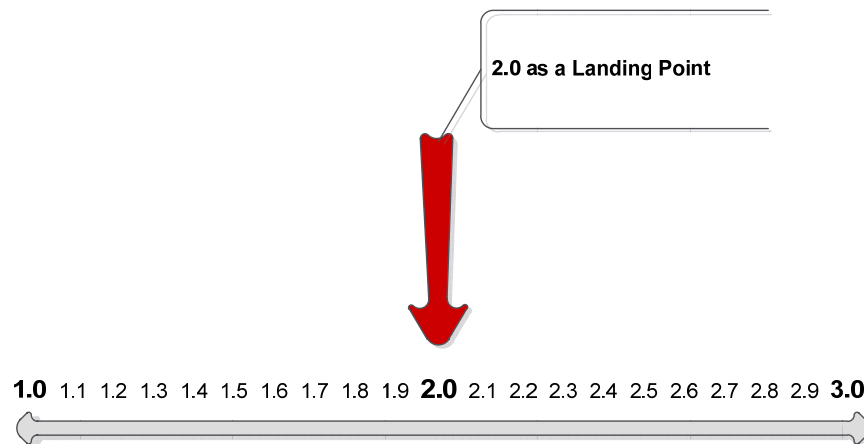


Prior to the TCM assessment and scoring session, the TCM team established initial weights to each of the applications and systems as to if they were primary, secondary, or not applicable to the Solution Set. (*The weighted Solution Sets can be seen in Appendix C: Weighted Solution Sets*). During the assessment and scoring sessions, these applications and systems were further analyzed with respect to their contribution to the Solution Set. This information influenced the Solution Set score by the relative weight based on aspect and ratio (e.g. supports more users, more transactional volume, demands more day-to-day user processing time.) For example, any one Solution Set might be comprised of several applications, but the largest or most widely used application(s) are given the most weight within the Solution Set. Therefore, their capabilities take precedent and more dramatically influence the TCM scoring assessment.

The full list of the system inventory to Solution Set alignment can be seen in: Appendix C: Weighted Solution Sets.

2.7 Assessment and Scoring

During this step the first week of October, 2011, the TCM team assessed and scored each Solution Set within the updated TCM. Scores were delineated with decimal points to capture useful rationale. During the TCM assessment and scoring session, maturity level 2.0 was typically used as a baseline, or “landing point”, unless a precedent had previously been established during the session for that aspect. If the 2.0 maturity level was determined not to be a good fit for the current environment then discussions focused respectfully to either the 1.0 and/or 3.0 definitions. Once the baseline maturity level (1.0, 2.0, or 3.0) was determined, the assessment discussions continued until consensus of the assigned score.



The TCM team initiated the assessment and scoring sessions by first reviewing the definition of the Solution Set (e.g. what business processes were included within this Solution Set), followed by reviewing and discussing the department specific applications and systems that support this Solution Set.

Once a baseline for the Solution Set was agreed upon, the TCM team processed the aspect and ratio conversations invoking the point system described below.

- Even decimal points (1.2, 1.4, 2.2, 2.4...) were awarded if the Solution Set was being pulled **up** and away from its baseline maturity level, by moving closer to a more advanced maturity level.
- Odd decimal points (1.1, 1.3, 2.1, 2.3...) were awarded if the Solution Set was being pulled **down** and away from its baseline maturity level, by moving closer to a lesser maturity level.

Through logical, structured and healthy discussion, the TCM team reached consensus on each score. The next section, Section 3.0, identifies the scores and provides averages for the Solution Sets, the TCM technical categories and the specific technical areas.

3.0 Technical Capability Analysis and Assessment

(1) B.0 Business Enabling Services

1. B.1 Forms Management
2. B.2 Workflow Management
3. B.3 Business Process Management (BPM)
4. B.4 Business Relationship Management (BRM)
5. B.5 Foreign Language Support

(2) B.6 Decision Support

6. B.6.1 Data Warehouse
7. B.6.2 Data Marts
8. B.6.3 Ad hoc Reporting
9. B.6.4 Data Mining
10. B.6.5 Statistical Analysis
11. B.6.6 Neural Network Tools

(3) A.0 Access Channels

12. A.1 Portal Access
13. A.2 Support for Access Devices
14. I.1.3 Orchestration and Composition
15. I.2 Standards-Based Data Exchange
16. I.3 Integration of Legacy Systems

(4) I.0 Interoperability

17. I.1.1 Service Structuring and Invocation
18. I.1.2 Enterprise Service Bus

(5) D.0 Data Management and Sharing

19. D.1 Data Exchange Across Multiple Organizations
20. D.2 Adoption of Data Standards

(6) P.0 Performance Measurement

21. P.1 Performance Data Collection and Reporting
22. P.2 Dashboard Generation

(7) S.0 Security and Privacy

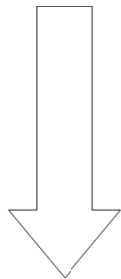
23. S.1 Authentication
24. S.2 Authentication Devices
25. S.3 Authorization and Access Control
26. S.4 Intrusion Detection
27. S.5 Logging and Auditing
28. S.6 Privacy

(8) F.0 Flexibility – Adaptability and Extensibility

29. F.1 Rules-Driven Processing
30. F.2 Extensibility
31. F.3 Automate Configuration and Reconfiguration Services
32. F.4 Introduction of New Technology

Least Detail

Subsequent pages of Section 3.0 organize the above eight (8) technical categories and their 32 technical area scores in order of *descending* level of detail and starting with (1) B.0 – Business Enabling Services.



Most Detail

Section 3.1: Depicts the eight (8) TCM Category Scores.

Section 3.2: Depicts the eight (8) TCM Category Scores plus, the 23 Solution Set score details.

Section 3.3 – 3.10: Depicts the eight (8) TCM Areas including the 32 Technical Area details, plus the 23 Solution Sets details.

3.1 TCM Scores: Technical Capability Matrix Summary

In summary, the assessment indicates that although the BoPHF technical landscape is functional, it is legacy and a candidate for improvement across the breadth of technical areas and functions. This is indicated by the average range of score from 1.0 to 1.6 on a scale of 1.0 to 5.0 as depicted in Figure 4.

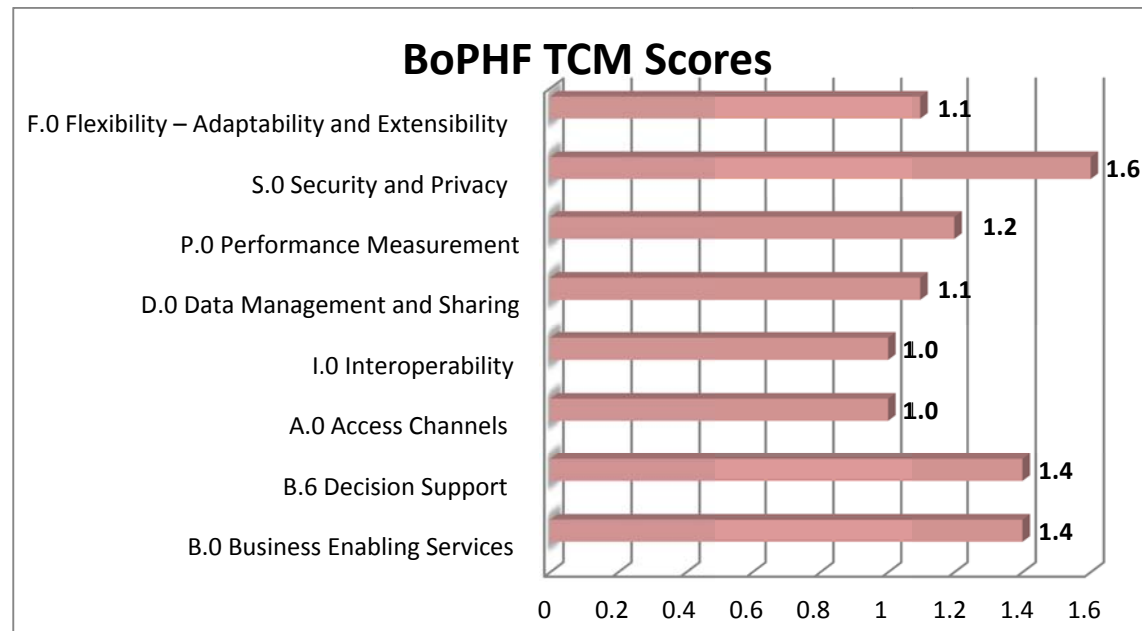


Figure 4: BoPHF TCM Average Scores by Technical Area (scale = 1.0 – 5.0)

3.2 TCM Scores: Technical Capability Matrix Summary and Solution Set Detail

Technical Capability Matrix	Technical Area Average	Eligibility	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships	Infrastructure Support and IT	Executive Support
B.0 Business Enabling Services	1.4	1.1	2.1	2.0	1.8	1.2	2.1	1.2	1.2	1.6	1.2	1.2	1.4	1.4	1.4	1.1	1.1	1.4	1.4	1.4	1.0	1.0
B.6 Decision Support	1.4	1.2	1.8	1.8	1.8	1.3	1.8	1.3	1.3	1.8	1.3	1.3	1.1	1.1	1.1	1.0	1.1	1.5	1.0	1.5	1.0	1.4
A.0 Access Channels	1.0	1.4	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
I.0 Interoperability	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
D.0 Data Management and Sharing	1.1	1.0	1.0	1.0	1.0	1.0	1.1	1.0	1.2	1.5	1.0	1.2	1.0	1.0	1.0	1.0	1.3	1.3	1.5	1.3	1.0	1.0
P.0 Performance Measurement	1.2	1.0	1.5	1.4	1.4	1.2	1.5	1.0	1.2	1.5	1.2	1.2	1.0	1.0	1.5	1.0	1.5	1.0	1.0	1.0	1.0	1.3
S.0 Security and Privacy	1.6	2.1	1.9	1.9	1.7	1.6	1.9	1.8	1.6	1.7	1.6	1.6	1.4	1.4	1.4	1.4	1.4	1.7	1.5	1.7	1.4	1.4
F.0 Flexibility – Adaptability and Extensibility	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.1	1.0	1.0	1.0
Solution Set Average	1.2	1.2	1.4	1.4	1.4	1.2	1.4	1.2	1.2	1.4	1.2	1.2	1.1	1.1	1.2	1.1	1.2	1.2	1.2	1.2	1.1	1.1

3.3 TCM Scores: Business Enabling Services Details (B.0)																						
Technical Capability Matrix	Technical Area Average	Eligibility	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships	Infrastructure Support and IT	Executive Support
Business Enabling Services Average	1.4	1.1	2.1	2.0	1.8	1.2	2.1	1.2	1.2	1.6	1.2	1.2	1.4	1.4	1.4	1.1	1.1	1.4	1.4	1.4	1.0	1.0
B.1 Forms Management	1.6	1.5	3.0	2.5	2.0	1.3	3.0	1.0	1.3	1.5	1.3	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.1	1.0
Electronic forms are prevalent across the Solution Sets substantiating the baseline score of 2.0. MEDITECH supports a level of efficiency in data collection and merging known data, thus moving towards the 3.0 score. Several Solution Sets include manual forms and paper process, thus reducing them from their baseline.																						
B.2 Workflow Management	1.5	1.0	2.5	2.5	2.0	1.3	2.5	1.0	1.3	1.5	1.3	1.3	1.5	1.5	1.5	1.0	1.0	1.5	1.5	1.5	1.0	1.1
Level 2.0 workflow management is supported across the Solution Sets where MEDITECH is primary. This includes electronic routing of information to business processes as designated by the framework. Three (3) Solution Sets incorporate advanced workflow where information is routed based on logic thus scoring 2.5. The remaining Solution Sets are supported by manual workflow, thus reducing them from the 2.0 standard.																						
B.3 Business Process Management (BPM)	1.5	1.0	2.0	2.0	2.0	1.3	2.0	1.5	1.3	2.0	1.3	1.3	1.5	1.5	1.5	1.0	1.0	1.5	1.5	1.5	1.0	1.0
Business process management is not formalized in the BoPHF environment, thus not instantiated across the solution sets in industry best-practice fashion. In several cases, business process is planned and executed and, thus the 2.0 score was achieved in those areas.																						
B.4 Business Relationship Management (BRM)	1.5	1.0	2.0	2.0	2.0	1.3	2.0	1.5	1.3	2.0	1.3	1.3	1.5	1.5	1.5	1.0	1.0	1.5	1.5	1.5	1.0	1.0
Business relationship management is not formalized in the BoPHF environment, thus not instantiated across the solution sets in industry best-practice fashion. In several cases, business process is planned and executed and, thus the 2.0 score was achieved in those areas.																						
B.5 Foreign Language Support	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Foreign language is not supported within any Solution Set.																						

3.4 TCM Scores: Decision Support Details (B.6)

Technical Capability Matrix	Technical Area Average	Eligibility	Enrollment/Registration, Intake, and Discharge Service	Coordination/Tracking and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships	Infrastructure Support and IT	Executive Support
Decision Support Average	1.4	1.2	1.8	1.8	1.8	1.3	1.8	1.3	1.3	1.8	1.3	1.3	1.1	1.1	1.1	1.0	1.1	1.5	1.0	1.5	1.0	1.4
B.6.1 Data Warehouse	1.5	1.3	2.0	2.0	2.0	1.3	2.0	1.5	1.3	2.0	1.3	1.3	1.0	1.0	1.0	1.0	1.0	2.0	1.0	2.0	1.1	2.0
Data Warehouse support is prevalent across the Solution Sets, especially where the MEDITECH application is a key contributor. Standardized data definitions exist with associated ETL (extract, transfer, and load) methods. Several Solution Sets are not supported in the BoPHF data warehouse architecture and/or contain shared files and folders, thus reducing them from the 2.0 score.																						
B.6.2 Data Marts	1.5	1.3	2.0	2.0	2.0	1.3	2.0	1.5	1.3	2.0	1.3	1.3	1.0	1.0	1.0	1.0	1.0	2.0	1.0	2.0	1.1	2.0
Data mart support is matched directly with the data warehouse support. These capabilities are also prevalent across the Solution Sets where MEDITECH is a key contributor. Several Solution Sets are not supported, thus reducing them from the 2.0 score.																						
B.6.3 Ad Hoc Reporting	1.9	1.4	3.0	3.0	3.0	1.8	3.0	1.5	1.8	2.5	1.8	1.8	1.5	1.3	1.5	1.0	1.5	2.0	1.0	2.0	1.0	1.5
Ad Hoc Reporting is primarily supported by COTS tools as indicated by the 2.0 baseline. Advanced capabilities of the COTS tools enable system users to automate the running, sharing, and storing of ad hoc reports in four (4) of the Solution Sets meeting the 3.0 score.																						
B.6.4 Data Mining	1.2	1.0	1.5	1.5	1.5	1.3	1.5	1.0	1.3	1.5	1.3	1.3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
A combination of COTS and coded procedures support data mining to detect patterns in large volumes of data across several Solution Sets and establish scoring of 1.3 or 1.5.																						
B.6.5 Statistical Analysis	1.2	1.0	1.5	1.5	1.5	1.3	1.5	1.0	1.3	1.5	1.3	1.3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Similar to the data mining capabilities, statistical analysis capabilities are supported by a combination of COTS and coded procedures within several Solution Sets.																						
B.6.6 Neural Network Tools	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Neural Network capabilities do not exist.																						

3.5 TCM Scores: Access Channels Details (A.0)

Technical Capability Matrix	Technical Area Average	Eligibility	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships	Infrastructure Support and IT	Executive Support
Access Channel Average	1.0	1.4	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
A.1 Portal Access	1.0	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Portal Access is only supported in the Eligibility Solution Set.																						
A.2 Support for Access Devices	1.0	1.3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Outside of the portal access within the Eligibility Solution Set, BoPHF Solution Sets do not extend to public facing or advanced access devices such as kiosks, voice response systems, or mobile phones.																						

3.6 TCM Scores: Interoperability Details (I.0)

Technical Capability Matrix	Technical Area Average	Eligibility	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships	Infrastructure Support and IT	Executive Support
Interoperability Average	1.0	1.0	1.0	1.0	1.0	1.1	1.0	1.0	1.1	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
I.1.1 Service Structuring and Invocation	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
BoPHF Solution Sets are not service oriented in architecture.																						
I.1.2 Enterprise Service Bus	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
BoPHF has not implemented an enterprise service bus.																						
I.1.3 Orchestration and Composition	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
BoPHF has not standardized orchestration and composition of functions across the enterprise.																						
I.2 Standards-Based Data Exchange	1.1	1.0	1.0	1.0	1.0	1.5	1.0	1.0	1.5	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Structured formats for data exchange (score of 2.0) exist within the Claims, Billing and Financial Processing Solution Set. The BoPHF lab uses HL7 interfaces with its reference labs and orders are shared via HL7. The HL7 interface is also used with transcription services as well.																						
I.3 Integration of Legacy Systems	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
There is no service oriented approach for legacy system integration, however not much need was cited for the current environment.																						

3.7 TCM Scores: Data Management and Sharing Details (D.0)																						
Technical Capability Matrix	Technical Area Average	Eligibility	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships	Infrastructure Support and IT	Executive Support
Data Management and Sharing Average	1.1	1.0	1.0	1.0	1.0	1.0	1.1	1.0	1.2	1.5	1.0	1.2	1.0	1.0	1.0	1.0	1.3	1.3	1.5	1.3	1.0	1.0
D.1 Data Exchange Across Multiple Organizations	1.1	1.0	1.0	1.0	1.0	1.0	1.2	1.0	1.0	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.0	1.0	1.0
Medical record, service and claims information is exchanged based on industry accepted practice. The remainder of data requests are nonstandard formats and in various media (e.g., telephone, paper, fax, e-mail.)																						
D.2 Adoption of Data Standards	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.4	1.5	1.0	1.4	1.0	1.0	1.0	1.0	1.5	1.5	1.4	1.5	1.0	1.0
BoPHF utilizes enterprise-wide data standards inherent to meaningful use and accountable care within several Solution Sets.																						

3.8 TCM Scores: Performance Measurement Details (P.0)

Technical Capability Matrix	Technical Area Average	Eligibility	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships	Infrastructure Support and IT	Executive Support
Performance Measurement Average	1.2	1.0	1.5	1.4	1.4	1.2	1.5	1.0	1.2	1.5	1.2	1.2	1.0	1.0	1.5	1.0	1.5	1.0	1.0	1.0	1.0	1.3
P.1 Performance Data Collection and Reporting	1.4	1.0	2.0	1.8	1.8	1.3	2.0	1.0	1.3	2.0	1.3	1.3	1.0	1.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0	1.5
A 2.0 baseline is achieved through defined performance metrics and reporting capabilities within several Solution Sets. In many cases, this baseline was reduced based on aspects of the Solution Set that are not supported by such capabilities (e.g. 1.n.)																						
P.2 Dashboard Generation	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
BoPHF does not currently have any dashboards implemented.																						

3.9 TCM Scores: Security and Privacy Details (S.0)

Technical Capability Matrix	Technical Area Average	Eligibility	Enrollment/Registration, Intake, and Discharge Service	Coordination/Tracking and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships	Infrastructure Support and IT	Executive Support
Security and Privacy Average	1.6	2.1	1.9	1.9	1.7	1.6	1.9	1.8	1.6	1.7	1.6	1.6	1.4	1.4	1.4	1.4	1.4	1.7	1.5	1.7	1.4	1.4
S.1 Authentication	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.5	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
With the exception of the 1.0 manual based Solution Set, access is managed via logon ID and password and supports industry best-practices such as requiring users to periodically change their password and mandatory characters sets.																						
S.2 Authentication Devices	1.1	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0
Overall, BoPHF solution sets are not single sign-on nor do they support advanced authentication. The primary enterprise applications require additional login after initial network login and authentication. Note that the 2.0 scores are deceiving with respect to the industry best-practice concept of "single sign-on" in that the solution set is file based (e.g. spreadsheet or Microsoft Access) and doesn't offer additional authentication.																						
S.3 Authorization and Access Control	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
With the exception of the 1.5 manual based Solution Set, user access to system resources is controlled depending on their role at sign-on thus achieving the 2.0 score. The outlier of 3.0 was determined based on the NewMMIS managing access based upon resource based roles and sub-module roles.																						
S.4 Intrusion Detection	1.3	1.0	2.0	2.0	2.0	1.3	2.0	2.0	1.3	1.0	1.3	1.3	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
A 2.0 score is achieved in many cases based on the BoPHF practice of monitoring for abnormal activities using defined and documented methods and the Solution Set enables this practice. Otherwise, monitoring for abnormal activities do not utilize defined and documented methods and score 1.n.																						
S.5 Logging and Auditing	1.6	1.3	2.5	2.5	1.5	1.5	2.5	1.5	1.5	2.0	1.5	1.5	1.5	1.0	1.0	1.0	1.0	2.0	1.5	2.0	1.0	1.0
A 3.0 score is baseline for the MEDITECH application centric Solution Sets as it provides access to the history of a user's activities and other management functions with support for the auditing of record level transactions. Solution Set applications not capable of record level logging or are limited to manual logging and analysis reduce the respective score.																						
S.6 Privacy	1.7	2.0	2.0	2.0	1.5	1.5	2.0	2.0	1.5	2.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.0	1.5	2.0	1.5	1.5
Access restriction to functionality based on defined access roles is supported to some degree by the majority of Solution Sets. Several Solution Set applications do not meet full 2.0 requirements because their functionality cannot be constrained by role.																						

3.10 TCM Scores: Flexibility – Adaptability and Extensibility Details (F.0)																						
Technical Capability Matrix	Technical Area Average	Eligibility	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships	Infrastructure Support and IT	Executive Support
Flexibility – Adaptability and Extensibility Average	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.1	1.0	1.0	1.0
F.1 Rules-Driven Processing	1.0	1.3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.0	1.0	1.0
Policy Tech and NewMMIS provide some processing against sets of rules based on existing business processes and evidence based practices.																						
F.2 Extensibility	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Extensions to all Solution Sets require pervasive coding changes.																						
F.3 Automate Configuration and Reconfiguration Services	1.2	1.0	1.5	1.5	1.5	1.3	1.5	1.0	1.3	1.5	1.3	1.3	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
MEDITECH centric Solution Sets provide configuration capability within application modules (e.g. ability to configure data entry forms, etc.).																						
F.4 Introduction of New Technology	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
BoPHF Solution Sets are not service oriented in design and do not provide for “plug and play” components, thus any new technology can only be introduced through technology-dependent interfaces.																						

4.0 Recommendations

The primary technology within BoPHF is over ten years old and is not service oriented in architecture. This non-service oriented environment indicates the need for systemic replacement in order to optimize current, market available technologies and solutions. This approach will enable the enterprise to establish a technology platform that can take advantage of rapidly evolving technologies and solutions as they become available. It is recommended that BoPHF:

- **Continue to develop a culture that maintains the TCM in order to make improvements to the technical environment.** We recommend continuing to utilize the TCM framework to inform planning efforts to systems and business processes periodically (at minimum annually.) This periodic to-be analysis should be used to identify critical areas of improvement. By following this guidance, BoPHF can maintain an effective, consistent framework and methodology for technical improvements.
- **Complete the to-be MITA TCM analysis.** Progressing from one maturity level to the next will come through careful planning and structured projects and initiatives. While these projects enable a higher maturity level it may be impractical to mature every business process and technical area. BoPHF should leverage the CMS required to-be analysis to help determine the priority business processes and technical areas that would have the greatest potential to affect desired outcomes such as program effectiveness, healthcare quality, and administrative efficiency.
- **Review the low scoring systems in this current as-is analysis.** Proactively planning to replace and/or improve weak technical areas in the current environment will foster confidence in this overall MITA process, continue to build upon the TCM culture and act as a spring board towards the desired future state environment. Some of these initial modifications may be done quickly and with little investment. For example, several areas of the TCM scored poorly because of the lack of procedures, standards, or consistent organizational structure. Discussing options of improving these documented procedures, standard and organizational structures should be considered.
- **Create requirements for the future technical environment.** We recommend using this document as guidance and a framework to create requirements for the future technical environment “to-be” state. This approach ensures the established alignment is maintained and gaps between the current state and future state can be objectively addressed.
- **Conduct a Request for Information (RFI) to inform BoPHF on the available market solutions and to help shape the future Request for Responses (RFR).** Understanding the market solutions in the context of the TCM and this report will assist the BoPHF procurement effort.

With respect to the BoPHF technology operating model, the BoPHF members of the TCM team are extremely capable, collaborative, experienced and knowledgeable of both the business and technical environments relative to BoPHF and the Commonwealth HHS enterprise. The other participating departments, DMH and DDS, while unique, do share similar characteristics including their technical environments. This appears promising as it may be valuable to share planning and technology assets, services and resources on this path to the future.

Appendix A: Technical Capability Matrix Template

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
B.0 Business Enabling Services						
B.1 Forms Management	MM Level 2, O4, G6	Manual data entry on hardcopy forms	Online data entry on electronic forms	Partially automated processes that merge known data into the forms and requires minimal electronic data entry		
B.2 Workflow Management	O4, G4, G6	Manual routing of hardcopy files to individuals involved in processing	Electronic routing of files to business processes and individuals involved in processing Responsible for processing completion and other individual and business processes	Intelligent routing of files and/or electronic forms dependent on a complex rule set that can route based on criteria such as role, priority, content sensitivity, and prior history		
B.3 Business Process Management (BPM)	G4	Manual, by user (core services and accompany valued defined, infrastructure in place)	Processes are planned and executed in accordance with policy and are monitored, controlled, and reviewed	Specification and management of business processes in conformance with MITA BPM standards (e.g., Business Process Execution Language [BPEL])		
B.4 Business Relationship Management (BRM)	O4	Manual (e.g., by attaching annotations to case files)	BRM requirements are managed by individual applications and these BRM processes are planned, performed, measured, and controlled	Basic BRM, including tracking relationships between Medicaid system users (e.g., beneficiaries and providers) and the services they have requested and received	Advanced BRM, which includes basic BRM plus analytics support and personalization capabilities	

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
B.5 Foreign Language Support	1. Manage Applicant and Member Communication, Level 3 2. O4	Manual translation of messages into supported foreign languages	Partial foreign language support for real-time and offline interaction	Foreign language translation support for real-time and offline interaction with beneficiaries in designated languages		
B.6 Decision Support						
B.6.1 Data Warehouse	G5, O7	Data environment for reporting is created from OLTP databases and operational reporting is supported	Extracting, transforming, and loading data from multiple databases into a data warehouse using standardized data definitions.	Extracting, transforming, and loading data from multiple databases into a data warehouse that conforms with the MITA Logical Data Model		
B.6.2 Data Marts	G5, O7	Data environment for reporting is created from OLTP databases and operational reporting is supported	Extracting, transforming, and loading data from multiple databases into data marts	Importing data into data marts that conform with the MITA Logical Data Model		
B.6.3 Ad hoc Reporting	MG2 Level 2	Ad hoc reporting, typically using coded procedures	Ad hoc reporting against databases using COTS tools	Ad hoc reporting using COTS tools that allows system users to automate the running, sharing, and storing of ad hoc reports		
B.6.4 Data Mining	MG2 Level 2	Data mining to detect patterns in large volumes of data, typically using coded procedures	Data mining to detect patterns in large volumes of data using COTS tools	Partially automated data mining in which the system finds patterns using COTS tools and alerts system users for further analysis		

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
B.6.5 Statistical Analysis	MG2 Level 2	Statistical analyses (e.g., regression analysis), typically using coded procedures	Statistical analyses of designated data (e.g., regression analysis) using COTS tools	Partially automated statistical analysis in which the system finds patterns using COTS tools and alerts system users for further analysis		
B.6.6 Neural Network Tools	MG2 Level 2	None	Analyses using neural network (e.g., learning)	System automatically predicts and alerts system users, for their intervention, of patterns, relationships, and non-linear data models		
A.0 Access Channels						
A.1 Portal Access	1. O4 2. MM Level 2 3. Enroll Provider, Level 2 4. Manage Applicant and Member Communications, Level 2	Beneficiary and provider access to appropriate Medicaid business functions via manual or alphanumeric devices	Beneficiary and provider access to appropriate Medicaid business functions via portal with single online access point	Beneficiary and provider access to appropriate Medicaid business functions via portal with single online access point		
A.2 Support for Access Devices	1. O4 2. MM Level 2 3. Enroll Provider, Level 2 4. Manage Applicant and Member Communications, Level 2	Beneficiary and provider access to services via manual submission, alphanumeric ("green screen") devices, or EDI	Beneficiary and provider access to services via browser, kiosk, voice response system, or mobile phone	Beneficiary and provider access to services online via PDA		
I.0 Interoperability						
I.1.1 Service Structuring and Invocation	G4, O2, O5	Nonstandardized definition and invocation of services	Service support using architecture that does not comply with published MITA service interfaces and interface standards	Services support using architecture that complies with published MITA interfaces and interface standards	Services support using a cross-enterprise services registry (to be verified)	

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
I.1.2 Enterprise Service Bus	G4, O2, O5	None or nonstandardized application integration	Reliable messaging, including guaranteed message delivery (without duplicates) and support for nondeliverable	MITA-compliant ESB	MITA-compliant ESB interoperable outside of a State Medicaid agency	
I.1.3 Orchestration and Composition	G4, O2, O5	Nonstandardized approaches to orchestration and composition of functions within and across the Medicaid Management Information System (MMIS)	Standardized approaches to orchestration and composition of functions within and across the MMIS	MITA-standard approach to orchestrating and composing services		
I.2 Standards-Based Data Exchange	G3	Ad hoc formats for data exchange	Structured formats for data exchange	Data exchange (internally and externally) using MITA standards		Data exchange (internally and externally) in conformance with MITA-defined semantic data standards (ontology-based)
1.3 Integration of Legacy Systems		Ad hoc, point-to-point approaches to systems integration	Structured, point-to-point and/or service enabled approaches to systems integration	Service-enabling legacy systems using MITA-standard service interfaces		
D.0 Data Management and Sharing						

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
D.1 Data Exchange Across Multiple Organizations	G5, G6	Manual data exchange between multiple organizations, sending data requests via telephone or e-mail to data processing organizations and receiving requested data in nonstandard formats and in various media (e.g., paper)	Electronic data exchange with multiple organizations via a MITA information hub using secure data, in which the location and format are transparent to the user and the results are delivered in a defined style that meets the user's needs	Electronic data exchange with multiple organizations via a MITA information hub that can perform advanced information monitoring and route alerts/alarms to communities of interest if the system detects unusual conditions		
D.2 Adoption of Data Standards	G3, O3	No use of enterprise-wide data standards	Data model that conforms to the MITA model and maps data exchanged with external organizations to this model	Data model that conforms all shared data used by a State Medicaid agency's business processes to the MITA model	Data model that conforms all shared data used by a State Medicaid agency's business processes to the MITA model and includes standards for clinical data and electronic health records	Data model that conforms all shared data used by a State Medicaid agency's business processes to the MITA model and that includes national standards for clinical data and electronic health records and other public health and national standards
P.0 Performance Measurement						
P.1 Performance Data Collection and Reporting	G2	Manual processes used, few predefined methods, requires extensive user intervention	Collect and report using predefined and ad hoc reporting methods and currently defined performance metrics	Define, implement, collect, and report using a set of business process-related performance metrics that conform to MITA-defined performance metrics	Generate alerts and alarms when the value of a metric falls outside limits	

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
P.2 Dashboard Generation	G2	Manual processes used, few predefined methods, requires extensive user intervention	Generate and display summary-level performance information (i.e., performance dashboards)	Generate and display summary-level performance information (i.e., performance dashboards) within a State Medicaid agency for all MITA-defined metrics		Generate and display summary-level performance information (i.e., performance dashboards) from external sources (e.g., other states and agencies) within a State Medicaid agency for all MITA-defined metrics
S.0 Security and Privacy						
S.1 Authentication	MM	Access to MMIS system capabilities via logon ID and password	Access to MMIS system capabilities via logon ID and password supporting industry best-practices such as requiring users to periodically change their password, mandatory characters sets, etc	User authentication using public key infrastructure in conformance with MITA-identified standards		
S.2 Authentication Devices		Authentication by entering logon ID and password	Authentication by entering logon ID and password - supporting single sign-on	Support for user authentication via kiosks based on fingerprints and delivery of results to authentication and authorization functions	Support for user authentication via Secure ID tokens and delivery of results to authentication and authorization functions	Support for user authentication via kiosks based on retinal scans and delivery of results to authentication and authorization functions
S.3 Authorization and Access Control		Access to system resources are not consistently based upon user role	User access to system resources depending on their role at sign-on	User access to system resources based upon application and application level data elements based on defined access roles		

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
S.4 Intrusion Detection		Users manually monitor for abnormal activities without a defined method	Users manually monitor for abnormal activities using defined and documented methods	The system monitors for abnormal activity and alerts users for their manual intervention		
S.5 Logging and Auditing		Manual logging and analysis	Access to the history of a user's activities and other management functions, including logon approvals and disapprovals and log search and playback	Access to the history of a user's activities and other management functions with support for the auditing of record level transactions		
S.6 Privacy		Procedural controls to ensure privacy of information	Access restriction to functionality based on defined access roles	Access restriction to data elements based on defined access roles		
F.0 Flexibility – Adaptability and Extensibility						
F.1 Rules-Driven Processing	1. Determine Eligibility, Level 3 2. G4	Manual application of rules (and consequent inconsistent decision making)	Define sets of rules based on existing business processes and evidence based practices	Linking a defined set of rules into business processes or using applications executed with a Basic Rules Management System (often called a Rules Engine)		
F.2 Extensibility	G4	Extensions to system functionality that require pervasive coding changes	Update/extensions to system modules are managed and are planned, performed, measured, and controlled	Services with points at which to add extensions to existing functionality (changes highly localized)		

Technical Area/Technical Function	Applicable Sources	Level 1 Capabilities	Level 2 Capabilities	Level 3 Capabilities	Level 4 Capabilities	Level 5 Capabilities
F.3 Automate Configuration and Reconfiguration Services	G4	Configuration and reconfiguration of distributed application that typically requires extensive hard-coded changes across many software components and/or applications across the enterprise (and with significant disruption)	Configuration and reconfiguration of distributed applications that use modular components within applications across the enterprise and with moderate disruption	Configuration and reconfiguration of distributed applications using services that require minimal hard-coded changes and with moderate disruption	Consistent distributed applications using common business change processes that coordinate between active components and ensure minimal disruption	Consistent distributed applications using common business change processes that coordinate between active components and ensure minimal disruption
F.4 Introduction of New Technology	O2, O5	Technology-dependent interfaces to applications that can be significantly affected by the introduction of new technology	Technology-dependent interfaces to applications that can be affected by the introduction of new technology, but that can easily be modified	Technology-neutral interfaces that localize and minimize the impact of the introduction of new technology (e.g., data abstraction in data management services to provide product-neutral access to data based on metadata definitions)		

Appendix B: Application System Inventories

Application System Inventory - Field Definitions

Column Header Name	Description of Column Contents
Application Full Name	The full name of the application with description as appropriate.
App Type (COTS, Custom, Hybrid)	The application is primarily COTS, custom coded, or a hybrid.
X = Transaction Processing	An X indicates the system is used to record transactional information.
X = Information Access	An X indicates the system is used to communicate information, for example using lists or maps.
X = End-User / Group productivity	An X indicates the system is used as a collaboration or group coordination tool.
X = Browser Delivery	An X indicates the system uses web browsers as the primary user interface.
Operating System & Platform	The OS and platform for operating the system.
Database	The database technology used by the system.
Language	The implementation language used by the system.
Data (Pers/PHI/FIN)	The system manages Personal, Health or Financial information.
Access Via (Inter/Intra/VPN)	Access to the system is via the Internet, Intranet or externally via VPN.
Scope (Bureau, Dept/Agency, Secretariat, Commonwealth)	The application's scope of use.
Year Installed	The year the system went live.
Number of IT Staff Assigned	The number of IT staff assigned, using fractional FTEs for part-time support.
Total Registered Users	The total number of end-users, indicating public access if appropriate.

Application Short Name	Application Full Name	App Type (COTS, Custom, Hybrid)	X = Transaction Processing	X = Information Access	X = End-User / Group productivity	X = Browser Delivery	System Architecture = 2 Tier or 3 Tier	Operating System & Platform	Database	Language	Data (Per s /PHI/ FIN)	Access Via (Inter/ Intra/ VPN)	Scope: Bureau, Dept/Agency, Secretariat, Commonwealth	Year Installed	Number of IT Staff Assigned	Total Registered Users	Systems Interfaced to
Summit Software	Scheduling software enabling the scheduling of printed Meditech reports. Software used exclusively for the Meditech System.	COTS			X		1	Windows XP Professional	Access 2003	Access			Bureau	2007	3	3	Meditech
Interbit (Auto Fax) - Active Fax	Software enabling the faxing of Meditech reports and results via PC. Software used exclusively with Meditech.	COTS			X		1	Windows 2003	SQL	SQL			Bureau	2007	3	unlimited	Network/Meditech
Meditech	Electronic medical record and billing system	COTS	X	X	X	X	3	Windows 2003	Magic	Magic	X	X	Bureau	2002	12	2,500	SFED/PACS/UMAS S
Policy Tech	Policy & Procedure Management Software	COTS		X	X	X	1	Windows	?			X	Hospitals	2010	1	All staff at WMH and LSH	
Carestream Health	PACS TKH	COTS	X	X	X	X	1	Windows	Oracle		X	X	Hospitals	2010	2	50	Meditech
Infinitt Photographic Archiving Computer System	PACS LSH	COTS	X	X	X	X	1	Windows	?		X	X	Hospitals	2010	2	200	Meditech
Abbott Blood Glucose System	Glucose Monitoring System	COTS	X		X		1	Windows	?		X	X	Hospitals	2009	1	??	Meditech
Stellate Harmonie EEG System	Stellate Harmonie EEG System	COTS	X	X	X		1		?				Hospitals			??	
Phillips Trace Master VUE (EKG)	Phillips Trace Master VUE (EKG)	COTS	X	x	X		1						Hospitals			??	
Intranet / Web	Intranet / Web			X	X	X	1	Windows				X	Bureau		Desktop Engineers at each Site	All Network Uses at Sites	
Occurrence Databases - Misc. Access DB		Custom	X	X	X		1	Windows			X		Hospitals		Desktop Engineers at each Site	??	
Misc. Spreadsheets		Custom	X	X	X		1	Windows			X		Hospitals		Desktop Engineers at each Site	??	

Application Short Name	Application Full Name	App Type (COTS, Custom, Hybrid)	X = Transaction Processing	X = Information Access	X = End-User / Group productivity	X = Browser Delivery	System Architecture = 2 Tier or 3 Tier	Operating System & Platform	Database	Language	Data (Per s /PHI/ FIN)	Access Via (Inter/ Intra/ VPN)	Scope: Bureau, Dept/Agency, Secretariat, Commonwealth	Year Installed	Number of IT Staff Assigned	Total Registered Users	Systems Interfaced to
Shared files/folders on networks being used for various patient related documentation		Custom	X	X	X		1	Windows			X		Hospitals		Desktop Engineers at each Site	??	
Nurse call System	Nurse Call System	COTS			X		1	Windows					Hospitals			??	
Intranet to access word documents for Menu Tracking	??	Custom			X	X	1	Windows				X	Hospitals		Desktop Engineers at each Site	??	
Geri Menu	Dietary Management Software	COTS	X	X	X		1	Windows			X		Hospitals		Desktop Engineers at each Site	??	
All Write Transcription Services - WMH	Vendor	COTS	X	X	X		1	Windows			X	X	Hospitals	2009	2	6	Meditech/SFED
Medquist Transcription Services - LSH	Vendor	COTS	X	X	X		1	Windows			X	X	Hospitals	2004	2	Clinical Staff at LSH	Meditech/SFED
In-house Transcription	??	COTS	X	X	X		1	Windows			X		Hospitals		Desktop Engineers at each Site	??	
FormFast	Form Management Software	COTS			X		1	Windows					Hospitals	2003	2	2	Meditech
Business Intelligence DB	SQL	COTS	X	X	X		2	Windows			X		Bureau	2009	3	25	Meditech
Pyxis	Medication Distribution System	COTS	X		X		1	Windows			X	X	Hospitals	2011		??	
SOPS - PIS	Pharmacy	COTS	X	X	X		1	Windows			X		Agency			??	
Citrix	Citrix	COTS			X	X	2	Windows 2003				X	Hospitals	2008	2	2500	Meditech
IVANS	CMS Communications Protocol	COTS	X		X		1	Windows				X	Agency	2009	Desktop Engineers at each Site	25	
NewMMIS	Medicaid Management Information System	Custom	X	X	X	X	2	Windows			X	X	Commonwealth			??	
MMARS/BAR	State Accounting Applications	Custom	X	X	X	X	2	Windows			X	X	Commonwealth			??	
HRCMS	State Payroll System	COTS	X	X	X	X	2	Windows			X	X	Commonwealth			??	
CAMIS	Facility Management Software	COTS	X	X	X	X	1	Windows			X	X	Commonwealth			??	

Application Short Name	Application Full Name	App Type (COTS, Custom, Hybrid)	X = Transaction Processing	X = Information Access	X = End-User / Group productivity	X = Browser Delivery	System Architecture = 2 Tier or 3 Tier	Operating System & Platform	Database	Language	Data (Pers / PHI / FIN)	Access Via (Inter/ Intra/ VPN)	Scope: Bureau, Dept/Agency, Secretariat, Commonwealth	Year Installed	Number of IT Staff Assigned	Total Registered Users	Systems Interfaced to
BoPHF Datawarehouse	SQL	Custom		X	X		1	Windows			X	X	Commonwealth			??	
Quest Labs	Reference Lab (for MHS)	COTS	X	X	X	X	2	Windows			X	X	Hospitals	2011	2	15	

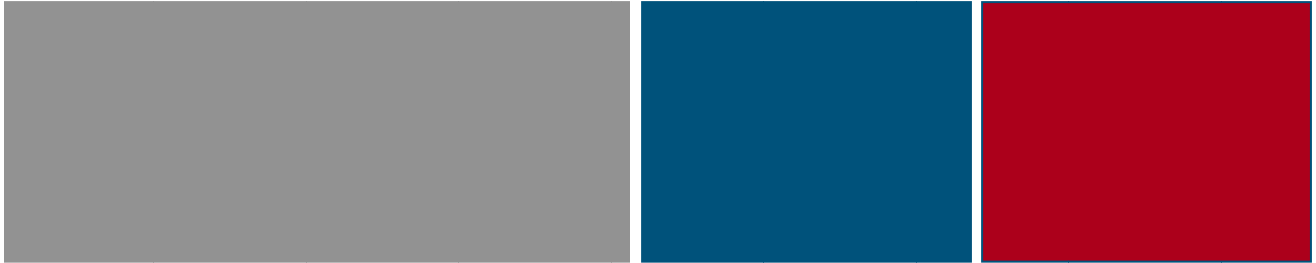
Appendix C: Weighted Solution Sets

		Solution Sets																				
Application Short Name	Application Full Name	Eligibility	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships	Infrastructure Support and IT	Executive Support
MEDITECH	TKH, LSH, WMH, MHS	n	a	a	a	a	a	a	a	a	a	b	a	a	n	n	n	n	n	n	n	b
Policy Tech	WMH, LSH	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	a	n	n	n
Carestream Health	PACS for TKH	n	n	n	n	b	n	n	b	n	n	n	n	n	n	n	n	n	n	n	n	n
Infinitt Photographic Archiving Computer System	PACS for LSH	n	n	n	n	b	n	n	b	n	n	n	n	n	n	n	n	n	n	n	n	n
Abbott Blood Glucose System	LSH, TKH	n	n	n	n	b	n	n	b	n	n	n	n	n	n	n	n	n	n	n	n	n
Stellate Harmonie EEG System	LSH	n	n	n	n	b	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Phillips Trace Master VUE (EKG)	LSH, TKH	n	n	n	n	b	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Intranet / Web	MHS, MHS	n	n	n	b	n	n	n	n	n	n	n	n	n	n	n	n	n	a	n	n	n
Occurrence Databases - Misc. Access DB	TKH, LSH, WMH, MHS	n	n	n	n	n	n	n	b	n	n	b	n	b	a	b	b	n	b	n	n	b
Misc. Spreadsheets	TKH, LSH, WMH, MHS	n	n	n	n	n	n		n	b	n	n	b	b	b	n	a	n	n	n	b	b

		Solution Sets																				
Application Short Name	Application Full Name	Eligibility	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships	Infrastructure Support and IT	Executive Support
Shared files/folders on networks being used for various patient related documentation	TKH, LSH, WMH, MHS	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b
Nurse call System	TKH, LSH, WMH, MHS	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	b	n	n	n	n	n
Intranet to access word documents for Menu Tracking	WHM	n	n	b	b	b	n	n	n	n	n	n	n	n	n	n	b	n	n	n	n	n
Gerry Menu	MHS, TKH	n	n	b	b	b	n	n	b	n	b	n	n	n	n	n	b	n	n	n	n	n
All Write Transcription Services - WMH	WMH	n	n	n	n	b	b	n	b	n	n	n	n	n	n	n	b	n	n	n	n	n
Medquist Transcription Services - LSH	LSH	n	n	n	n	b	b	n	b	n	n	n	n	n	n	n	b	n	n	n	n	n
In-house Transcription	MHS	n	n	n	n	b	b	n	b	n	n	n	n	n	n	n	b	n	n	n	n	n
In-house Transcription	TKH	n	n	n	n	b	b	n	b	n	n	n	n	n	n	n	b	n	n	n	n	n
FormFast	LSH, TKH, WMH, MHS	n	b	n	n	n	n	n	b	n	n	n	n	n	n	n	n	n	n	n	n	n

		Solution Sets																				
Application Short Name	Application Full Name	Eligibility	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships	Infrastructure Support and IT	Executive Support
Falls, PCA, Environment of care	WMH databases	n	n	n	n	b	n	n	b	b	n	n	n	n	b	n	b	n	n	n	n	n
Solution Set Support, e.g. Reporting and Interfaces																						
Business Intelligence DB	TKH, LSH, WMH, MHS	n	n	n	n	b	a	a	b	b	n	n	n	b	n	n	b	n	n	n	n	b
Summit Software	TKH, LSH, WMH, MHS	n	n	b	b	b	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
AutoFax/ActiveFax	LSH and MHS	n	n	b	b	b	n	n	b	n	n	n	n	n	n	n	n	n	n	n	n	n
Pyxis	TKH and LSH	n	n	n	n	b	n	n	b	n	n	n	n	n	n	n	n	n	n	n	n	n
SOPS - PIS	Pharmacy interface for hospitals (Including DMH)	n	n	n	n	b	n	n	b	n	n	n	n	n	b	n	n	n	n	n	n	n
Citrix	Citrix	n	n	n	n	n	n	a	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Non-BoPHF Systems																						
Sidexis XG Dental	WMH and NO data exchanged	n	n	n	n	b	n	n	b	n	n	n	n	n	n	n	n	n	n	n	n	n
IVANS	VPN Interface used for Medicare claims processes (TKH, LSH, WMH)	n	n	n	n	n	n	n	n	b	n	n	n	n	n	n	n	n	n	n	n	n
NewMMIS	TKH, LSH, WMH, MHS	b	n	b	n	n	n	n	n	b	n	b	n	b	n	n	n	n	n	n	n	n
MMARS/BAR	TKH, LSH, WMH, MHS	n	n	n	n	n	n	n	n	b	n	b	n	n	n	n	n	a	n	b	b	b

		Solution Sets																				
Application Short Name	Application Full Name	Eligibility	Enrollment/Registration, Intake, and Discharge	Service Coordination/Tracking and Communication	Scheduling	Care Planning and Treatment	Medical Record Management	Information Privacy and Security	Order Entry, Laboratory, and Pharmacy	Claims, Billing and Financial Processing	Service Delivery Data from Contracted Providers	Interagency Coordination for Shared Client Services	Manage Consumer Funds	Legal, Forensic, and Guardianship	Incident Management	Accreditation and Licensing	Quality Management	Provider and Contractor Management and Procurement	Manage Policy and Goals	Establish and Manage Business Relationships	Infrastructure Support and IT	Executive Support
HRCMS	TKH, LSH, WMH, MHS	n	n	n	n	n	n	n	n	b	n	n	n	n	n	n	n	n	n	n	n	b
CAMIS	TKH, LSH, WMH, MHS	n	n	n	n	n	n	n	n	b	n	n	n	n	n	n	n	n	n	n	n	b
BoPHF Datawarehouse	TKH, LSH, WMH, MHS	n	n	n	n	n	n	n	n	b	n	b	n	n	n	n	n	a	n	b	b	b
Quest Labs	MHS Reference Lab	n	n	n	n	b	n	n	b	n	b	n	n	n	n	n	n	n	n	n	n	n



Commonwealth of Massachusetts
Executive Office of Health and Human Services
Next Generation System Planning Project

Deliverable 6A (DDS); Business Capability Matrix
(Based on MITA SSA-Version 2.0)

March 30, 2012

Erin Ferrari, Project Manager
The Commonwealth of Massachusetts
Executive Office of Health and Human Services
One Ashburton Place, 11th Floor
Boston, MA 02108
erin.ferrari@state.ma.us

Charlie Leadbetter, Project Principal/Project Manager
BerryDunn
100 Middle Street, PO Box 1100
Portland, ME 04104-1100
cleadbetter@berrydunn.com

Deliverable 6A (DDS): Business Capability Matrix

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Appendices:

Appendix A; Business Process Template (Definitions)

Appendix B; Maturity Matrix (Definition)

Appendix C; Completed Business Process Templates

Appendix D; Completed Maturity Matrices for Business Processes

Draft Version	Delivered Date	Update Reason
Version 1	January 3, 2012	Deliverable Issued
Version 2	March 30, 2012	Deliverable Re-issued to correct inconsistencies

Executive Summary

The primary systems that support the business of the Departments of Developmental Services (DDS), Mental Health (DDS) and the Public Health, Facilities (DPH) have been developed over time through an innovative approach of describing these solutions as Modules within the Medicaid Management Information System (MMIS) operated by the Executive Office. This approach has allowed the agencies to claim enhanced developmental federal dollars for the creation of these solutions and enhanced operational federal dollars for ongoing operations and maintenance. As these systems near “end-of-life”, the agencies have been talking about a replacement or Next Generation System. In order for any solution to continue to qualify for enhanced federal matching dollars, the current systems must be treated like the MMIS; specifically, they fall within the federal requirement to have a Medicaid Information Technology Architecture (MITA) state-self assessment performed.

The MITA initiative was undertaken in 2002 by the Centers for Medicare and Medicaid Services (CMS) to standardize yet stimulate and accelerate business and technological transformation of the Medicaid enterprise in all States. MITA presents a framework for states that describes business capabilities and technical capabilities in the present (the As-Is) and a corresponding vision of potential business and technology capabilities and integration in the future (the To-Be). The Business and Technology Capability Matrices, when complete, include a series of snapshots of how business improvements and enabling technology and integration may move an agency along the path from the current state to the potential To-Be state.

The business capability levels focus on describing the distinct technological and operational progress over time as agencies progress their business operations and technologies towards the future vision. This series of snapshots is called the Maturity Model, and provides agencies with both a target for further business transformation and technical improvements and a measure for how far along they are on the path to CMS' ultimate vision of an integrated and interoperable business operation supported by enabling technology. (adapted from Behavioral Health MITA Version 1.0).

For the Department of Developmental Services the MITA As-Is State Self-Assessment (SS-A) began with a goal setting effort for the agency and progressed to the development of a list of business processes to be reviewed as part of the SS-A. The business processes were selected from the 76 MITA-defined Business Processes and augmented with related process that are done for DDS, central to the agency's business, conducted on DDS solutions and similar to MITA business processes but not done specifically for the state Medicaid agency (MassHealth). While many processes are performed for DDS business using the agency's own technology solutions, the goal of the Commonwealth is to achieve greater interoperability between DDS systems and MassHealth's NewMMIS system in the future. In Section 2.0 of this report, a table shows the various processes and describes the extent to which a process is MITA Specific or MITA related and thus requires collaboration or linkages between DDS and MassHealth. In addition, business processes not related to MITA are categorized as Agency Specific Processes (ASP) and indicated as such on the table.

The MITA Business Process Model provides the foundation for developing the vision, grounded in the business processes identified today (adapted from Behavioral Health MITA Version 1.0). Ultimately, these MITA artifacts become the baseline against which requirements are gathered

for the Next Generation Solution; the As-Is capabilities are the minimum requirements to support the business and the To-Be capabilities are the minimum level of new functions and features that the proposed solutions must also support for agency growth. Finally, these MITA artifacts will allow the Next Generation Solution efforts to qualify for the enhanced federal funding.

On the pages that follow, the project approach and methodology are described, the various business processes and their relationship to the MITA processes are depicted and process specific maturity levels are presented and explained.

To date, BerryDunn has completed the first three activities of the MITA process: 1. Develop/Document Agency Goals, 2. Determine Agency Specific Processes and MITA processes performed by DDS, and 3. Document the As-Is Environment for each process identified in Activity 2.

Formal business requirements for the Next Generation system will not be captured until Activity 6. At that time, BerryDunn will develop an integrated approach across the three agencies for drafting the requirements, which can be used for the procurement of a new cross agency system.

1.0 Purpose

1.1 Background

The Commonwealth of Massachusetts Executive Office of Health and Human Services (EOHHS) engaged BerryDunn to provide a Medicaid Information Technology Architecture (MITA) State Self-Assessment (SS-A) for the Department of Developmental Services (DDS), the Department of Mental Health (DMH), and the Department of Public Health (DPH). These three EOHHS Agencies each operate their own systems, based on the PCMS Corporation acute hospital software that has been enhanced to meet the individual needs of the Agencies, that is then linked to MassHealth's New Medicaid Management Information System (NewMMIS). This collective MITA C-2 SS-A is referred to as Component Two of the EOHHS MITA Initiative. Component One was the "As Is" analysis of the Medicaid business process and technical capability assessments, completed in October 2008 and Component Three will be the "To Be" full scale MITA analysis of MassHealth based on the May 26, 2009 implementation of the NewMMIS.

In preparation for this project, DDS, DMH and DPH evaluated their own business models and mapped these against the eight high-level MITA-defined Business Areas and the 76 MITA-defined Business Processes. In Massachusetts many of the MITA-defined Business Processes are performed for the Agencies by MassHealth, some of the MITA-defined Business Processes are performed specific to the Agency, and there are a number of Agency-Specific Processes (ASPs) within these 8 MITA-defined Business Areas that were identified. For example, the initial MITA-defined Business Process is Determine Eligibility: for all Agencies, determining eligibility for Medicaid is performed by MassHealth but each Agency performs another eligibility determination for their own services. Therefore, the Determine Eligibility process is MITA related for each Agency but not Medicaid-specific.

Teams of Subject Matter Experts from the state Agencies and from the contractor were assembled and three independent MITA-SSA efforts were undertaken in parallel during 2011.

1.2 Agency Background

The Department of Developmental Services provides comprehensive community based services for more than 32,000 adults with intellectual disabilities and children with developmental disabilities. These services are delivered by a network of more than 200 private provider agencies as well as state-operated community programs. The Department also provides facility based services for fewer than 1,000 individuals in six developmental centers, four of which are slated for closure. Services are effectively managed by a Central Office, four Regional Offices and 23 Area Offices. Services include employment, day programs, residential supports, and family support services. The Department has continued to support the continuous shift to more participant-directed services with new initiatives including the Autism Waiver and Agency with Choice and their ongoing support of the growth of self-advocacy.

In addition to direct services for people with disabilities and their families, DDS manages other key areas include quality management of community services through a survey and certification process, eligibility determination, service coordination and case management, information and referral, and service planning and prioritization. The Department manages a system that

ensures a significant portion of its budget receives federal reimbursement through four home and community based (HCBS) waivers and for services provides by the developmental centers.

1.3 MITA Overview

The DDS team used a combination of the MITA 2.0 Process Model and the SAMHSA Behavioral Health MITA Business Process Model (Version 1.0) to organize the various business processes that were documented. For the DDS SS-A, Business Processes were aligned with the seven Behavioral Health MITA Business Areas, and one additional area, Support Services Management, in relation to processes occurring at the ICF/MR facilities.

The 76 MITA-defined Business Processes and the starting set of 115 Agency Business Processes provided by DDS prior to the project start served as the baseline from which the final list of Business Processes was developed. Working in conjunction with DDS subject matter experts, the starting set of processes were vetted for applicability and relevance to DDS's operations. The result of this vetting was a universe of 127 Agency Specific Processes (ASP). During activity 2, and continuing throughout Activity 3 ASP meetings, the list of processes were consolidated and condensed to 67 ASP's and 5 MITA processes. Each of the processes was organized in a logical sequence based on how a DDS individual moves through the DDS system. The final list of process were each compared, individually, to the SAMHSA Behavioral Health MITA Business Process Model and each relevant process was linked to one of the 7 Business Areas as defined in the SAMHSA model, while two ICF/MR related processes were linked to Support Services Management. Support Services Management is a category created by BerryDunn related to the ICF/MR facilities, and is described in more detail in Section 2.8.

It is important to note that even though DDS does not perform every key Business Process for Medicaid (as defined in the MITA Business Processes), it does perform many of the same business processes internally. As a result of the development of the Process list, only a few (ASP's) that were identified as critical to the DDS enterprise had not already been identified SAMHSA MITA Model. Those processes, related to certain processes that occur in the ICF/MR settings are described in In Section 2.8. In Section 2.0 each business process is listed and identified as MITA – MITA Related – Agency Specific Process in the appropriate column.

A MITA Maturity Model and Maturity Matrix were developed for the project based on a review of:

1. Relevant MITA Framework 2.0 chapters and appendices; and
2. Relevant SAMSHA Behavioral Health MITA Framework chapters and appendices.

Using information gleaned from the source documents a Draft MITA Maturity Model methodology and template was created and initially reviewed by Department of Mental Health (DMH) leads. After a review and discussion of maturity measures - specifically for Levels 1, 2 and 3 - an updated Maturity Model was created and circulated to Department of Developmental Services (DDS) and Department of Public Health (DPH) state team leads for review and comment. Comments from each agency were received and updates were made to the model and one common Maturity Model and Maturity Matrix was finalized for use across all three agencies for three different business models.

The Maturity Model assesses each Business Process' maturity on a scale of 1 to 3 across these following Qualities and Measures:

- Interoperability
 - Technical, Semantic and Process Interoperability
- Timeliness of Process
- Data Access and Accuracy
 - Standardization of Data and Format
 - Storage of Data
 - Access to Data
 - Reporting
- Effort to Perform/Level of Effort
- Cost-Effectiveness
- Quality and Accuracy of Process Results
 - Accuracy of Results and Validation Process
- Utility or Value to Stakeholders

Documents Used to Inform the SS-A

- A single Template - based on the MITA Business Process Template - was used to document each Business Process across each of the Business Areas
 - A separate Template was completed for each Process.
- A MITA Maturity Matrix was developed specifically for this project using MITA Maturity levels as defined in MITA 2.0 in conjunction with the Behavioral Health MITA guidance and some language adapted to reflect actual business processes that are done in the Department of Mental Health.
 - A separate Maturity Matrix was completed for each Process

Copies of these templates are included as Appendix A and Appendix B of this report.

1.4 Methodology

The Business Process review and Maturity Capability determination was carried out by a core group of DDS staff along with vendor staff. The specific steps taken to complete effort are delineated below:

- a. DDS developed an initial Process list and identified relevant MITA processes in the MITA RFR that led to this project
- b. DDS assembled a core MITA team of staff to drive the planning, business process review and maturity level determination efforts
- c. A team of subject matter experts (SMEs) from DDS worked with the core MITA team to refine the Process list
- d. BerryDunn and DDS staff contributed to the development of a maturity matrix to be used across all three agencies
- e. DDS identified a preliminary list of SMEs to participate in each Business Process meeting
- f. Work sessions were held across a period of three months
- g. DDS and the vendor team held 83 work sessions with 60 unique participants – many of whom attended more than one session - At each work session the MITA Maturity Matrix

was completed by the BerryDunn DDS meeting facilitator and SME and was later reviewed by the DDS project sponsor and technical lead in conjunction with the review of the Business Process Templates

- h. At each work session the Business Process Template content and operational details were captured for each Process and projected so all participants could see the first draft of the captured content
- i. Completed Business Process Templates underwent a thorough review process with DDS meeting participants and the DDS project sponsor and technical lead
- j. Business Process Templates were updated to incorporate DDS feedback and then finalized
- k. Approved templates and matrices were uploaded to a common site (Knowledge Link) accessible by DDS and vendor staff
- l. Completed Maturity Matrices were analyzed and those results are included in this report in the Gap Analyses within section 2.1-2.8.

1.5 HCSIS Overview and Mapping of Related ASPs

Several ASPs were driven by the Department's use of the Home and Community Services Information System (HCSIS). After holding multiple HCSIS related work sessions, BerryDunn opted to create an additional HCSIS overview document in order to better summarize and explain some of the process interoperability being supported by HCSIS. Below is our executive summary.

Home and Community Services Information System (HCSIS) is part of the Department of Developmental Services Information System (DD SIS) used by the DDS Staff and Providers to help monitor the health and safety of the individuals served. HCSIS is a web-based information system that includes: Incident Management, Medication Occurrence Reporting, Restraint Reporting, Death Reporting, Investigations, Health Care Record, and National Core Indicators. The grid below highlights the HCSIS modules down the side and the user permission category/type across the columns on the top.

User Type →

MODULE	Central Office Executive Staff	Central Office Program Staff	DDS Investigations	Regional Office Program Staff	Area Office Program Staff	Human Service Coordinator Supervisors	Human Service Coordinators	Private and State Operated Providers	State Operated Residences	Facilities	Human Rights Coordinators	MAP Coordinators	Technical Resources
Incident Reporting	X	X	X	X	X	X	X	X	X	X	X		X
Medication Occurrences	X	X	X	X	X	X	X	X	X	X		X	X
Restraint Reporting	X	X	X	X	X	X	X	X	X	X	X		X
Death Reporting	X	X	X	X	X	X	X	X	X	X			X
Investigations	X	X	X	X	X								X
Health Care Record	X	X	X	X	X	X	X	X	X				X
Service Coordinator Supervisor Tool	X	X		X	X								X
Participation Allocation Management (PAM)	X	X		X	X								X
National Core Indicators	X	X											X
User Administration													X

- HCSIS provides access to information and reports to support DDS and Provider quality initiatives.
- HCSIS includes an Incident Management System that helps DDS “close the loop” around incidents by providing an opportunity to centrally track and manage incidents.
- HCSIS captures monitoring and evaluation information, and integrates them into a comprehensive quality management system.
- HCSIS provides a single source of information storage to allow for improved risk management, services, reporting, tracking, and analysis.
- By automating and standardizing many operational activities, HCSIS offers increased accountability and improved support structures.

Incident Management is the reporting, review and analysis of events including: incident reports, medication occurrence reports, restraint reports and optionally reportable events.

- Incident Management automates and standardizes the reporting, reviewing and analysis process.
- Incident Management provides users with a step-by-step explanation of how to file and manage Incident reports, Medication Occurrence reports, and Restraint reports in HCSIS.

Death Reporting is the reporting of all deaths for individuals who are over the age of 18 and who are receiving services from DDS; the review of the report by DDS Central Office Staff for completeness; and the review of the report by the Office of Quality Management staff to include information about the final cause of death.

- HCSIS automates the Death Reporting process and includes information about the individual, the circumstances of the death, and the appropriate notifications.
- Once the Death Report has been accepted, the appropriate staff within the Area Office, Region, and Central Office is notified of their reporting responsibilities in the system via an alert.

HCSIS Investigations module captures information regarding investigations into allegations of abuse or mistreatment of individuals receiving services from DDS.

- HCSIS helps facilitate the multiple steps involved in assigning and conducting an Investigation
- The Investigations module allows for the electronic sharing of information among the DDS Staff responsible for conducting Investigations and carrying out the Action Plan.
- The Investigation module is linked to the Incident Management portion of HCSIS, allowing for easy access between Incidents and Investigations.

Health Care Record (HCR) is a form, completed by the Residential Provider or Service Coordinator, which gathers demographic and medical information regarding the health status of an individual. The HCR is updated in preparation of completing or reviewing an Individual's Service Plan (ISP) to reflect a change in the individual's health status, or transfer of the individual from an intermediate care facility to a Residential Provider.

National Core Indicators (NCI) module supports the Core Indicator Surveys administrated by the National Association of State Directors of Developmental Disabilities Services (NASDDDS) and Human Services Research Institute (HSRI).

Note: The development that was scheduled to be completed for this module was put on hold. So currently, the NCI module has not been sufficiently enhanced to be used by DDS. DDS does have an Autism survey tool functionality that is used to conduct surveys for Autism consumers.

- The NCI surveys provide a measure of the quality of the services provided by DDS and the provider community to its citizens with developmental disabilities.
- The sample of individuals served by DDS is automatically generated and survey data is entered
- through HCSIS.
- HCSIS helps automate the creation of the survey sample and facilitates data entry so information is entered completely and accurately.

User Administration is the management of individual security profiles in HCSIS. The DDS Help Desk performs the Central Office Administrative tasks including the creation of HCSIS user IDs, assigning scopes and assigning roles. Regions, Area Offices, Facilities and Providers identify a Local HCSIS Administrator within their organization to manage user IDs and role assignments on an ongoing basis.

- The Security Model allows users to only see/maintain data that is relevant to their role(s) and scope(s).
- Decentralized administration allows the Central Office, Regions, Area Offices, Facilities and Providers to manage users from within their respective organizations.

HCSIS Reports display a summary of information at a specific point in time that allows the user to access data collected and stored in HCSIS.

The ability to request and view reports from HCSIS is based on the user's role and scope. The Reports Request screen and Reports List will vary by role and scope.

HCSIS Module	Report Name
Incident Management	Aging Incident Detail Report
	Aging Incident Summary Report
	Event Counts
	Events By Individual Detail Report
	Events By Site/Provider
	Incidents With Injury Counts
	Incidents With Injury Detail
	Incidents By Case Status
	Multiple Events By Individual Summary
	Medication Occurrence Detail
	Medication Occurrence Summary
	Restraint Detail Report

HCSIS Module	Report Name
Investigations	Action Plans
	Investigation Count
	Outstanding Investigations
Health Care Record	HCR Printable Form
National Core Indicators	Aggregate Response Report
	Survey Status Report for Providers
	Survey Status
User Administration	Administrative Analysis Report by Local Administrator
	Administrative Analysis by User

- Each HCSIS subsystem has its own set of reports designed to manage the information in HCSIS.
- Most reports are available for viewing immediately - reports that are not available immediately are available the day after they are requested.
- Reports provide single screen access to summary information that would be more difficult to read on multiple screens.
- Reports can be printed or saved electronically.
- Reports have specific search parameters so the user can tailor the report to meet their needs.

Related ASPs

The following ASPs contain more details on how HCSIS is used to support DDS business processes:

DDS Number	ASP Process Title
DDS-004	Manage All DDS and HCBS Waiver individual (and Family) Information including Assessments, Documentation and Reports
DDS-007	Develop and Manage All DDS, ICF and HCBS individual Service Plans and Delivery
DDS-008	Manage DDS State Funded Only Delivery Enrollment
DDS-013	Manage HCBS Waiver Programs Individual Service Planning Evaluation
DDS-070	Provision and Management of Waiver Assurances
DDS-071	Manage All DDS and HCBS Programs Reporting and Analysis Requirements
DDS-094	Establish HCSIS Access Roles for DDS and Provider Staff
DDS-096	DDS Manages Consumer Investigations including: Intake and coordination with DPPC on Investigations, Investigation of DDS Consumers Abuse/Mistreatment/ Neglect Complaints and Management of DDS Consumers Investigations Documentation,

DDS Number	ASP Process Title
	Reporting, Analysis and Communication
DDS-099	Manage DDS Incident Reporting & Analysis
DDS-103	Manage DDS Consumers' Health Care Records
DDS-104	Manage DDS Consumers' Restraints Reports
DDS-106	Manage DDS Consumers' Death Reporting Information and Analysis
DDS-110	Manage DDS Core Indicators Project

Interfaces

HCSIS is interfaced with the PCMS Data Repository for retrieval of individual demographics, provider relationships and caseload information providing full integration with the DDSIS

- **Note: PCMS continues to be the system of record for case-related information.**

HCSIS is interfaced or there are plans to interface with the following Non-DDS Systems:

DDS System	Non-System DDS	Description of Data Exchange
HCSIS (PAM)	EIM	PAM receives the EIM expenditures of individuals within service budgets to monitor compliance with federal waivers. Functionality was developed but then rolled back for PAM to send waiver service limits; generic provider service data and individual service enrollments and individual budget data to EIM in order to prior authorize payment to providers. This prior authorization functionality has been changed to monitoring tool wherein EIM sends notice of bills that would have been denied. No bills are actually denied by EIM.
HCSIS (PAM)	PDM	PDM contains data that should be integrated with PAM. This interface does not currently exist.
HCSIS (PAM)	PPL	PPL sends expenditure and service budget, and provider information. Files pulled from PPL portal by DDS then is uploaded into file directory and SQL SSIS package that loads the data into PAM. Files are linked by eligibility number.
Quality Enhancement Version 5 (QE5)	PDM	Data on contracted agency providers' qualifications should be received from PDM and loaded into QE5. This interface does not currently exist.

2.0 MITA BUSINESS CAPABILITY FINDINGS

DDS carefully reviewed each of the 76 MITA-defined business processes in terms of whether each was an activity that DDS performs for or with MassHealth, the State Medicaid agency, whether it was related to a MITA-defined process or whether it was a process performed solely for DDS. Some processes in the MITA Business Areas of Business Relationships Management and Program Management are done for Medicaid and the remaining processes are defined using similar MITA language, are critical to DDS's operations but not performed strictly for or with Medicaid.

Crosswalk of DDS Business Processes

The table below contains the various processes documented for DDS:

- Column **A** includes the Business Process title
- Column **B** indicates that DDS performs this process for the Medicaid program
- Column **C** indicates that DDS performs a MITA Related Process but not specifically for the Medicaid program
- Column **D** indicates a DDS Agency Specific processes (also known as a State-Specific Process(SSP))

DDS #	Business Process Title	MITA Process	MITA Related Process	Agency Specific Process
Individual Management				
001	Determine DDS Eligibility		X	
002	Manage DDS Communication on Eligibility		X	
003	Manage All DDS and Waiver Applicant (and Family) Grievance and Appeal relative to All Types of Appealable Events		X	
004	Manage All DDS and HCBS Waiver individual (and Family) Information including Assessments, Documentation and Reports		X	

DDS #	Business Process Title	MITA Process	MITA Related Process	Agency Specific Process
006	Manage All DDS and HCBS Waiver individual (and Family) Communication such as Letters and Notifications		X	
008	Manage DDS State Funded Only Delivery Enrollment		X	
010	Determine HCBS Waivers Eligibility		X	
011	Manage DDS Programs and HCBS Waivers Enrollment		X	
012	Monitor HCBS Waivers Eligibility		X	
016	Manage Wait Lists for Waiver Enrollment		X	
018	Suspend/Disenroll Individuals from All DDS Programs		X	
023	Manage DESE/DDS Program Application		X	
029	Manage DDS Individuals who are admitted or are at risk of being admitted to Nursing Facilities		X	
032	Manage DDS ICF/MR Individual Assessments			X
079	Manage DESE/DDS Program Information			X
082	Manage DDS Rolland/NF Program Information Management			X
085	Develop and Manage Housing Capacity			X
114	Manage DDS Individual Transportation Information			X
115	Manage DDS Individual Legal Information (Guardian)			X
126	Determine DDS Eligibility for Autism Waiver		X	
127	Autism Waiver Budget		X	
MITA 7	Manage Applicant and Member Communication	X		
Provider/Contractor Management				
039	Manage DDS Provider Procurement			X

DDS #	Business Process Title	MITA Process	MITA Related Process	Agency Specific Process
041	Manage DDS Contract Information (Type of Service, Activity Code, Frequency, Contract Capacity and Service Utilization, Locations, Primary Contract Owner, etc.)			X
042	Manage DDS Provider Communication			X
044	Manage Qualification of Agency (as opposed to Individual) Providers to Deliver DDS Services			X
049	Manage DDS Transportation Brokers Cost/Utilization Information			X
50A	Manage DDS HCBS Autism Participant Driven Program Individual and Agency Provider Eligibility			X
50B	Manage Adult Participant Directed Program Individual and Agency Provider Eligibility			X
052	Autism and Adult PDP: Manage DDS HCBS Autism Participant Driven and Adult Programs Participant Directed Provider Agreements, Billing and Payment (non-claiming)			X
Operations Management				
057	Submit DDS HCBS Waiver Programs Claims		X	
062	Manage and Submit DDS Targeted Case Management (TCM) Claims		X	
094	Establish HCSIS Access Roles for DDS and Provider Staff			X
113	Manage DDS Individuals' Charges for Care			X
MITA 37	Apply Mass Adjustment	X		
Support Services Management				
121	Support Services Management			X
122	Support Facility Infrastructure Management			X

DDS #	Business Process Title	MITA Process	MITA Related Process	Agency Specific Process
	Program Management			
014	Manage DDS HCBS Adult Waiver and Other Adult Programs - Individual Allocations and Budgets		X	
021	Manage DDS Turning 22 Program Individual Budgets			X
036	Maintain and Manage Lists of DDS Individuals by Class			X
046	Provider Listing of Available Providers to Deliver Services			X
056	Track DDS HCBS Waiver Programs' Capacities		X	
058	Track DDS Service Coordination Caseload and Make Adjustments as Necessary			X
061	Track DDS ICF/MR Capacity and Census			X
063	Manage DDS Accounts and Appropriations			X
070	Provision and Management of Waiver Assurances		X	
071	Manage All DDS and HCBS Programs Reporting and Analysis Requirements		X	
078	Manage DESE/DDS Program Individual Budget			X
				X
099	Manage DDS Incident Reporting and Analysis			X
101	Manage DDS Medication Occurrence Reports			X
102	Perform DDS Consumers Medication Occurrence Reports Analyses			X
103	Manage DDS Consumers' Health Care Records			X
104	Manage DDS Consumers' Restraints Reports			X

DDS #	Business Process Title	MITA Process	MITA Related Process	Agency Specific Process
105	Perform DDS Consumers' Restraints Reports Analyses			X
106	Manage DDS Consumers' Death Reporting Information and Analysis			X
112	Manage DDS Individual Funds			X
117	Perform Population/Individual Outreach			X
125	Cross-agency Communication and Record Sharing of Individual Information			X
M56	Develop And Maintain Program Policy	X		
M59	Manage FFP for MMIS	X		
M60	Formulate Budget	X		
Care Management				
005	Manage DDS Individual Service Prioritization			X
007	Develop and Manage All DDS, ICF and HCBS individual Service Plans and Delivery			X
090	Evaluate and Track the Risk of DDS Individuals			X
110	Manage DDS Core Indicators Project			X
013	Manage HCBS Waiver Programs Individual Service Planning Evaluation		X	
118	Develop Discharge Planning and Transition Plan from Institutional Settings			X
119	Develop and Manage DDS Family Support Plans			X
123	Admission to Institutional Settings		X	
Accountability Management				

DDS #	Business Process Title	MITA Process	MITA Related Process	Agency Specific Process
96	DDS Manages Consumer Investigations including: Intake and coordination with DPPC on Investigations, Investigation of DDS Consumers Abuse/Mistreatment/Neglect Complaints and Management of DDS Consumers Investigations Documentation, Reporting, Analysis and Communication			X
116	Maintain Accreditation			X
120	Manage Provider Agency Quality Assurance			X

2.1 Individual Management

The Client Management business area is a collection of business processes involved in managing client data and communications, and focuses on outreach to current and potential clients, capturing and maintaining client demographic details, and supporting clients' need for service information. The goal for this business area is to manage client data and communications to improve program participation and healthcare outcomes; future transformation is towards more client self-directed decision making.

In the sections that follow BerryDunn provides the Maturity Matrix rating for each ASP, across the different Business Areas.

The Maturity Model rating scale is loosely based on the following criteria.

Rating	Standard
1	Majority of the process or process component is manual. Automation exists within individual process tasks, but not across all tasks in the process component.
2	Process components are more automated, accurate, timely, and more efficient.
3	Advanced automation, including data exchange protocols, business logic and system driven alerts exist, saving considerable staff time and effort.

As noted above, each Agency Specific Process was rated across several components, Interoperability, Timeliness, Data Access, etc. If a process has mostly level 2 ratings across these components, but one area, (e.g.: Quality and Accuracy of Results) was rated a 1, the ASP as a whole was rated a 1.

Business Process				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
001	Determine DDS Eligibility	DDS processes intake application, verifies applicant's disability according to DDS regulations and renders an eligibility determination.	1	The Maturity Level is at a 1, and is likely to remain at a 1 due to compliance related rules. Each application requires an original signature for the eligibility application to be processed. Even faxed in applications are not allowed. This requires that applications be mailed or hand delivered to DDS for review and processing. Vineland Assessment Tool Licensing terms require that paper forms are used, and there are insufficient Vineland licenses to allow for online access at the time of original assessment. To improve the process applications should be web-based, including assessments. Signatures could be scanned or e-signed, and verified with a validation code, much like credit card purchases over the web. This would move the process to a Maturity Level of 2.

Business Process				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
002	Manage DDS Communication on Eligibility	DDS communicates with applicant/family according to the DDS eligibility regulation timeline and determination processes/outcomes.	1	The Maturity Level is at a 1 but has opportunity to improve to a Level 2 or even Level 3 with the implementation of a Next Generation system. DDS currently sends out letters 3 different ways: using PCMS standard letters, using letters that are already saved on DDS computers, or creating new letters from scratch. A letter generation and tracking system, organized by type of letter, recipient type and name, along with timestamps for the date the letter was created, send out, received and responded to would move the Maturity Level to a Level 2, and possibly a Level 3. Substantial time and effort will be needed to flesh out requirements for a document management and letter generation module, but the technology is currently available in the marketplace.

Business Process				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
003	Manage All DDS and Waiver Applicant (and Family) Grievance and Appeal relative to All Types of Appealable Events	DDS Eligibility Team and/or Legal unit manages the appeal process when ineligibility determinations are appealed.	1	This process is currently as a Level 1 Maturity Level. The main reasons are twofold. 1. There are scores of letters going to and from DDS to individuals. Some require wet signatures, eliminating scanned signatures, and removing some level of automation. Additionally, the appeals and grievance tracking systems are logs, but do not track activity, change in dates, and status. This leads to a lack of interoperability and more manual effort. To move this process to a higher maturity level DDS would need to implement a letter generation and document management system.
004	Manage All DDS and HCBS Waiver Individual (and Family) Information including Assessments, Documentation and Reports	DDS collects and maintains all information pertaining to an individual's eligibility status and evaluation of individual's and family's strengths and areas of need.	1	This process is assigned a Maturity Level of 1 because it did not meet certain Level 2 measures within three qualities: Timeliness, Data Access and Accuracy (External Access to Data), and Utility or Value to Stakeholders (Value to Stakeholders). A particular issue is provider assessments, most of which are paper-based; because files cannot be attached to an individual's PCMS record; most provider assessment data is not viewable in PCMS. Even in cases where there are PCMS screens for provider assessments, since providers do not have access to PCMS, the data has to be re-entered. In addition, data cleanup work is currently a drain on resources.

Business Process				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
006	Manage All DDS and HCBS Waiver individual (and Family) Communication such as Letters and Notifications	DDS manages all communications with individuals and families including electronic note entries and letters and notifications mailed to individuals and families.	1	The process is at a Level 1. Although some letters are automated through PCMS, other letters are created through shared letter templates on the DDS hard drives. Both letter templates are lacking logic to easily identify letter recipients, do not contain tracking tools for the date the letter was sent, and was responded to, and involve many manual steps by staff in the creation of final letters, including wet signatures.
008	Manage DDS State Funded Only Delivery Enrollment	DDS manages program enrollment for individuals in state-funded only services (individuals not enrolled in a waiver program).	1	This maturity level is at a 1. The identification of problems between the enrollment of individuals in either the correct program or service is based on claim errors and requires manual intervention to evaluate and make the proper corrections. This is labor intensive and affects the timeliness of claims processing. The maturity of this process could be increased by providing more robust validations at the time of service recording.
010	Determine HCBS Waivers Eligibility	DDS determines individual eligibility for all HCBS waiver programs relative to individual's clinical needs and Medicaid status. DDS evaluates waiver program participants' clinical eligibility through adequate and appropriate assessments.	1	This ASP is Maturity Level 1. It did not meet Level 2 capabilities for 5 of 14 measures. Production reporting is limited, automated data validation is lacking, data inquiry capabilities are limited, data is not updated in real-time and access to Medicaid eligibility data is hindered by lack of shared databases.

Business Process				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
011	Manage DDS Programs and HCBS Waivers Enrollment	All DDS and Waiver programs' enrollments are tracked.	1	This process is closely linked to several other DDS processes including DDS001, DDS003, DDS004, DDS005, and DDS006. Each of these processes is at Level 1 maturity level. The main things keeping this process at a level 1 is the lack of document management and letter generation and tracking tools; inadequate interoperability between Area Offices data collection and DDS data collection and storage, and the lack of appropriate business logic for data validation and event-driven reporting. Each of these areas should be addressed in an effort to improve the maturity level of all of these ASPs.
012	Monitor HCBS Waivers Eligibility	Interface with MassHealth for asset reports, monitor re-determination timelines, and assist families with related processes.	1	The process is currently at a Maturity Level of 1, though in some areas it meets the threshold for Level 2. To comprehensively meet Level 2 criteria, DDS needs to have event-based, real time reporting related to waiver assurances, more front end data validation, including making certain fields required to proceed in eligibility and enrollment processes, and should enable web-based or VPN access for Area Office staff.

Business Process				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
016	Manage Wait Lists for Waiver Enrollment	DDS programs and waiver program capacities and wait lists are monitored according to DDS guidelines and CMS approved waiver.	1	The process is at a Maturity Level of 1. The processes include the use of hand posted notes to capture waiver capacity numbers, do not allow Area Agencies access to the wait list management tools, and does not track whether individuals on the wait list are receiving state plan services. More interoperability between DDS, MassHealth and the area offices would enhance the process.
018	Suspend/Disenroll Individuals from All DDS Programs	DDS disenrolls individual from all DDS programs.	1	The process is at a Maturity Level of 1, though several components of the process are at a Level 2. Due to the nature of the outcome of this process, an individual being disenrolled from DDS or Waiver services, verbal communication is often used between Area Offices and DDS, and DDS Waiver Management Unit and the UMASS Medicaid Revenue Unit. The implications of improperly dis-enrolling an individual from services may outweigh the need to automate and integrate every single step of the process, and it may need to remain, for some components, at a Level 1.
023	Manage DESE/DDS Program Application	DESE/DDS program applicants are screened for eligibility for enrollment in the DESE/DDS program according to program guidelines and appropriations.	1	This maturity level is at a 1. The process is paper intensive, including detailed paper applications that are passed between multiple parties. Some level of automation and stored data exists within PCMS and IMPACT. By making the application process web-based, and including a module for creation, review, modification and approval of budget, the process could move to a Level 2 Maturity level.

Business Process				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
029	Manage DDS Individuals Who are Admitted or are at Risk of Being Admitted to Nursing Facilities	For an individual at risk of admission to a nursing facility, per federal regulation, DDS must complete a Level 2 PASSR screen. Per results of PASSR individuals are either approved for NF stay or denied and give a provisional approval for 30-90 days. Specialized services are also recommended for those who are approved to stay. When approved to stay and remain in the NF over 90 days, individual becomes a Rolland Class Member, and all applicable communication and documentation, especially surrounding the RISP must now take place and be aggregated and managed.	2	The process is at a Level 2. Room for improvement remains around allowing web based access to PASRR screens and more integrated and logic driven reporting.
032	Manage DDS ICF/MR Individual Assessments	ICF/MR individuals' clinical assessments and documentation are tracked according to Title XIX regulations.	1	The process is at a high functioning Level 1 Maturity Level. Opportunity remains for generating alerts to staff members about an admission and a pending ICF/MR assessment. Additional ability to pull in historical clinical data from within other DDS providers would lead to more interoperability and better overall assessments.

Business Process				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
079	Manage DESE/DDS Program Information	Track information specific to individuals participating in the DESE Program. DDS operates with funding from Dept of Education (changed to Department of Elementary and Secondary Education, DESE) and serves children ages 6 through 22nd birthday. It is essentially a diversion program to avoid placing kids in residential programs. It provides additional supports outside of school to help keep kids in public school. All participants are DDS eligible as children or adults and enter through the DDS eligibility process. There are about 300 kids in the program now, with about 200 waiting. DDS expects to serve about 100 from the waiting list in FY12. Providers are qualified to provide services (one-on-one supports, behavioral-based programming, plus "other related goods and services") through this program. DDS is in the process of updating the program to clarify parameters of covered services. DDS is in the process of developing a new application evaluation and waitlist process (to take other factors into account for example geographic location, holding/shedding applications, prioritization); the current process is based on the application date.	1	This ASP is Maturity Level 1. It did not meet the Level 2 capabilities for 6 of 14 measures. Many aspects of this business process are paper-based and manual, and critical data is stored in multiple formats and locations and not readily accessible to all parties. Supporting documentation such as assessments are maintained in paper files and budgets are created in Excel; neither are tied to or accessible through the individual's PCMS record.

Business Process				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
082	Manage DDS Rolland/NF Program Information Management	Track information specific to Rolland/NF individuals.	1	Notifications of nursing home admissions include verbal and fax notifications, requiring manual intervention to track the admission event in PCMS and the offline Rolland Class spreadsheet. Business logic related to calculating Length of Stay and triggering alerts when an individual's facility stay is over 90 days, making the individual a Rolland Class member are lacking. Adding this logic and more interoperability and data validation mechanisms on elements that are required for both DDS and MassHealth to trigger additional business steps would increase the maturity level.
085	Develop and Manage Housing Capacity	Ensure accurate tracking of housing stock, capacity and fiscal planning.	1	Critical data such as housing vacancies, housing quality, individual utilization and needs, waiting list, and group home costs, are stored in separate systems which are not inter-operable, making reporting and program tracking challenging, as well as retrieving data in a timely manner to make decisions regarding individual services.

Business Process				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
114	Manage DDS Individual Transportation Information	DDS tracks individuals' transportation information relative to mode, routes and cost.	1	The process is at a Level 1. The main reason is a lack of DDS and PCMS interoperability with Human Services Transportation, (HST) an external agency that funds and coordinates transportation for human service clients. Additional areas holding back the maturity level are the process around the transportation request form, which relies on written and faxed requests. A web based transportation request form would improve DDS' collection and capturing of request information. HST would need to allow for more improved system access for DDS to benefit.
115	Manage DDS Individual Legal Information (Guardian)	DDS's Legal department tracks all individuals' legal information and matters related to guardianship of an individual.	1	This maturity level is at a 1. DDS maintains a database module within PCMS to track Guardian change requests, although Area Office staff often fill out required paperwork outside of PCMS and send in requests via fax and mail. Additional process steps taken by legal department lack interoperability and require manual steps or offline spreadsheets for tracking, which will keep the Maturity Level at Level 1.

Business Process				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
126	Determine DDS Eligibility for Autism Waiver	DDS reviews Autism Waiver applicants to verify their financial and clinical eligibility for the program.	1	This maturity level is at a 1. While some processes include data exchanges from the Support Centers to DDS and back, there is dual data entry between the Autism Budget Tool and the PCMS budget CDS, and it's possible for budgets to not match the updates in PCMS. Additionally, data from Excel budget tool must be rekeyed into PCMS. The process of tracking expenditures against the budget is very manual, and service data is not easily linked to individual budgets requiring a lot of manual intervention for basic reporting.
127	Autism Waiver Budget	DDS creates and manages individual's budget to support Autism Waiver program for individuals.	1	The maturity level is at a 1. The formal budget tool contains functionality that meets Level 2 criteria; however, there is an offline Excel budget tool utilized by area support brokers. This tool often is out of synch with the budget data in the system of record, and dual data entry is often required on some budget items because of this offline tool. This offline tool must be synced with the budget tool to meet Level 2 criteria.

Business Process				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
MITA 7	Manage Applicant and Member Communication	The Manage Applicant and Member Communication business process receives requests for information, appointments and assistance from prospective and current members' communications such as inquiries related to eligibility, redetermination, benefits, providers; health plans and programs, and provides requested assistance and appropriate responses and information packages. Communications are researched, developed and produced for distribution via Send Outbound Transaction process.	1	This MITA business process is assessed at a maturity Level 1 because it does not meet any of the Level 2 business capabilities. Communications are primarily conducted by paper and phone and responses are manual. DDS case managers do not have direct access to key Medicaid eligibility data such as anniversary date and redetermination information.

2.2 Provider/Contractor Management

Provider/Contractor Management business area is a collection of business processes that focus on recruiting and managing potential providers/contractors, maintaining information on and communications with providers/contractors, and provider/contractor compliance monitoring. This business area encompasses the many types of DDS program and supports contracts. There are approximately 300 agencies that the Department contracts for community based services, including 24 hour residential programs, shared living, day and employment programs, and family supports.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
039	Manage DDS Provider Procurement	DDS manages provider procurement according to the Commonwealth's procurement policies and includes Agency With Choice model.	2	This process is at a Level 2 Maturity. It is supported by a web-based procurement portal operated by the Commonwealth. Different DDS inputs and outputs related to provider qualifications, certifications and procurement are also at a Level 2. These different data sources that may need to be accessed throughout a procurement cycle share no interoperability, at the process is really at the low end of Level 2. Without integrating the Commonwealth's Comm-Pass system into the DDS provider applications this process cannot move beyond a Level 2.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
041	Manage DDS Contract Information (Type of Service, Activity Code, Frequency, Contract Capacity, Locations, Primary Contract Owner, etc.)	DDS provider contracting documentation and service utilization is tracked. Information is used in other ASPs, e.g., ASP-014.	1	The process is at a high functioning Level 1 Maturity Level. By resolving challenges with interoperability between EIM functions and other systems the process could move to a Maturity Level of 2. As with several DDS processes improved front end data validation will lead to better data and reporting downstream.
042	Manage DDS Provider Communication	DDS tracks communications with providers.	1	The process is a Level 1 although it is meeting Level 2 criteria for most areas, but has opportunity to move toward full Level 2 criteria. The introduction of a contact relationship management system (CRM) and a letter generation and tracking system would move the process to a level 2.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
044	Manage Qualification of Agency (as opposed to Individual) Providers to Deliver DDS Services	DDS qualifies Agency providers, including Agency with Choice providers, to be approved to provide specific DDS services. This business process applies to “Traditional Providers,” who are qualified through EOHHS and DDS to provide “Traditional Services” and usually have contracted slots; and Agency with Choice Providers, an arrangement where an Agency hires (co-employs) an individual provider at a rate negotiated by the individual receiving services and is credentialed like a Traditional Provider even though it has a variable rate structure as opposed to a contract.	1	This maturity level is at a 1. Agency provider application information is a paper-based submission and processed manually. The results are entered and maintained within PDM and an automated email is generated for notification to the provider. PDM has capabilities that would need further development in order for the online application submission and review processes to be fully implemented. This would increase the maturity level of the process.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
049	Manage DDS Transportation Brokers Cost/Utilization Information	DDS Regional and Area Offices manage transportation related funds	1	The process is at a Maturity Level of 1. Excel spreadsheets are utilized by different staff at DDS and area offices and HST to track spots and budgets available for transportation services. Version control issues arise when using Excel spreadsheets and the process is often triggered by verbal communication that is not formally tracked. The use of one integrated transportation budget and tracking tool would enhance the process and move is closer to a level 2.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
050A	Manage DDS HCBS Autism Participant Driven Program Individual and Agency Provider Eligibility	Autism providers are independent contractors/employees/agencies retained by the individual. DDS works with PPL to ensure the individual providers' qualifications comply with the HCBS Autism waiver programs' regulations.	1	This maturity level is at a 1. Integration efforts with PPL, an outside vendor are underway. The process to submit and review and store an application from an individual who wants to select a provider is based on mail and fax. PPL offers an online application form, which can accept attachments for the adult PDP program. This would move process to level 2.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
050B	Manage Adult Participant Directed Program Individual and Agency Provider Eligibility	Adult Participant Directed Program providers are independent contractors/employees/agencies retained by the individual. DDS works with the individual and PPL to ensure the individual providers' qualifications comply with the DDS program requirements.	1	This maturity level is at a 1. Integration efforts with PPL, an outside vendor are underway and include a data exchange mechanism that reduces level of effort and enhances data quality. Manual components of agreements between individuals/families/provider remain on paper, and are usually drawn up via in person meetings. This process will likely remain unchanged and the nature of the provider agreements with the individual/family will keep the maturity level at a 1.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
052	Autism and Adult PDP: Manage DDS HCBS Autism Participant Driven and Adult Programs Participant Directed Provider Agreements, Billing and Payment (non-claiming)	DDS tracks Autism Participant Driven and Adult Participant Directed providers' overall contractual terms.	2	This maturity level is at a 2. PPL's process to submit and review and store an application from an individual who wants to select a provider is web-based and more streamlined than the Autism provider selection process. Much of the data processing and collection is part of an outsourcing agreement with a vendor, and there is little current opportunity to increase the Maturity Level to a 3.

2.3 Operations Management

The Operations Management business area includes operations that support the funding and payment of services and service providers. It supports funds management and the receipt and distribution of funds and payments, and all information associated with agency funding to and from all sources. Most States currently have automated operations that support at least some of these activities. Common activities include allocating and monitoring grants and funding distribution, and managing and facilitating payment processes both internally and with State Medicaid and other State payer programs.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
057	Submit DDS HCBS Waiver Programs' Claims	DDS ensures that HCBS waiver programs' claims submitted are accurate.	1	This maturity level is at a 1. The timeliness and the validation of the process are the areas with the lowest maturity due to the monthly billing cycle. Additional effort is required to batch and process claims within the PCMS file size limitations, and the validation process occurs at the end of the process, rather than near the beginning, which can lead to more error resolution than necessary. These issues would need to be addressed in order to increase the maturity level of this process.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
62	Manage and Submit DDS Targeted Case Management Claims (TCM)	DDS manages the life cycle of TCM claims and ensures accurate claiming of all federal Medicaid reimbursement for all programs contracted with Medicaid.	2	The process is currently meeting Level 2 Maturity criteria for DDS. Areas for improvement to reach level 3 include data exchange, which require an upload, download and re-import process, rather than an automated data exchange with MassHealth NewMMIS. There is also a requirement for greater file size capacity (bandwidth or file size) for submitting PCMS service records to NewMMIS. Batches are often too big for PCMS to process and need to be broken up into multiple batches. This would need to be addressed in a NextGen system, since the issue is with PCMS, and not NewMMIS.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
094	Establish HCSIS Access Roles for DDS and Provider Staff	HCSIS users are assigned access roles based on their business functions and level of authorization.	1	The current process is supported by automated communication between the DDS and VG helpdesks, but the initial user request is submitted manually and then communicated via spreadsheet. Errors are difficult to track because the DDS Help Desk does not have access to bounced email notifications. Within HCSIS the steps to assign site level security is a labor intensive activity that also affects timeliness. These issues would need to be addressed in order to increase the maturity of this process.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
113	Manage DDS Individuals' Charges for Care	DDS establishes level of charges per individual's assets and income, and monitors the latter as charges are levied.	1	This maturity level is at a 1. The calculation and storage of an individual's rate is done in spreadsheets maintained at the facility or region and is then updated in the billing system (BARS). Additional process steps for managing adjustments requests are also processed manually and lack interoperability with BARS. Monthly bills are printed and then are manually reviewed at the Area Office prior to mailing to ensure billing was done at the correct rate. These manual interventions would need to be addressed in order for the maturity level to increase.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
MITA 37	Apply Mass Adjustment	The Apply Mass Adjustment business process begins with the receipt or notification of retroactive changes. These changes may consist of changed rates associated with HCPCS, CPT, Revenue Codes, or program modifications/conversions that affect payment or reporting. This mass adjustment business process includes identifying the claims by claim/bill type or HCPCS, CPT, Revenue Code(s), or member ID that were paid incorrectly during a specified date range, applying a predetermined set or sets of parameters that will reverse the paid claims and repay correctly. This business process often affects multiple providers as well as multiple claims.	1	The process is at a Level 1. The process involves manual steps, emails as formal notice and alerts, and requires verbal confirmation to non DDS departments, including MassHealth Claim Operations and the UMASS Revenue unit. NewMMIS system access restrictions do not allow DDS to directly enter rate parameters, which are received from Division of Healthcare Finance and Policy, another state agency under EOHHS. Without more widespread permissions into NewMMIS for other agencies within the EOHHS umbrella, this process will not be able to meet Level 2 maturity.

2.4 Business Relationships Management

The Business Relationship Management business area is currently represented in many States as a component of Program Management. It is shown here as a separate business area because collaboration between in-State agencies and inter-State and Federal agencies is increasing in importance. This business area owns the standards for interoperability between the agency and its partners. It contains business processes that have a common purpose (e.g., establish the interagency service agreement, identify the types of information to be exchanged, identify security and privacy requirements, define communication protocol, and oversee the transfer of information.)

After consultation with DDS senior staff, DDS indicated that they do not perform these Business Relationship Management functions for MassHealth.

2.5 Program Management

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The Program Management business area houses the strategic planning, policy-making, monitoring, and oversight activities of the agency. These activities depend heavily on access to timely and accurate data and the use of analytical tools. This business area uses a specific set of data (e.g., information about the benefit plans covered, services rendered, expenditures, performance outcomes, and goals and objectives) and contains business processes that have a common purpose (e.g., managing the Medicaid program to achieve the agency's goals and objectives such as by meeting budget objectives, improving customer satisfaction, and improving quality and health outcomes).

This business area includes a wide range of planning, analysis, and decision-making activities, including benefit plan design, rate setting, healthcare outcome targets, and cost-management decisions. It also contains budget analysis, accounting, quality assessment, performance analysis, outcome analysis, continuity of operations plan, and information management. This is the heart of the Medicaid enterprise and the control center for all operations.

As the Medicaid enterprise matures, Program Management benefits from immediate access to information, addition of clinical records, use of standards, and interoperability with other programs. The Medicaid program is moving from a focus on daily operations (e.g., number of claims paid) to a strategic focus on how to meet the needs of the population within a prescribed budget.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
014	Manage DDS HCBS Adult Waiver and other Adult Programs - Individual Allocations and Budgets	Adult HCBS waiver and other adult program budgets and individual allocations managed according to the individual support plan.	2	Interoperability exists between what is budgeted and utilized, but the file transfers happen through download and upload of CSV data rather than a fully automated data exchange. The timeliness and accuracy of the result is highly dependent on the claims processing process, as tracking utilization is dependent on claims adjudication. Increasing the frequency of claims processing, reducing claims errors and establishing a more automated file transfer method would increase the maturity of this process.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
021	Manage DDS Turning 22 Program Individual Budgets	DDS manages Turning 22 programmatic budget as appropriated and individual budgets as planned.	1	Turning 22 applications (the "Gold Form") are paper, submitted by mail or fax, and data is input manually into CDS. An Access database was created in order to improve data retrieval and reporting, but access to the tool is limited.
036	Maintain and Manage Lists of DDS Individuals by Class	DDS tracks class membership of DDS individuals and their services.	2	The process essentially is an electronic data collection/query and reporting function. The data used for this process is almost exclusively already stored in a database, minimizing any manual steps. Access to the core data, as well as only a handful of staff with the appropriate technical and analytic skills are a barrier to moving past Maturity Level 2.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
046	Provider Listing of Available Providers to Deliver Services	DDS manages service directory for DDS Services including those in the HCBS Waiver Programs.	1	PDM has web portal capabilities for online provider service qualification, but the capabilities are not being used at this time. Providers can submit changes in agency identification data through PDM. The individual provider data in PPL is manually maintained in PCMS. Implementing the PDM web portal provider service qualification and interfaces of provider data from both PDM and PPL would increase the maturity level of this process.
056	Track DDS HCBS Waiver Program's Capacities	DDS tracks each DDS HCBS waiver program's capacity.	1	The process lacks rules and alerts to track and reconcile available waiver slots. Logic is lacking to run through the Target Group list and to auto assign individuals based on application date.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
058	Track DDS Service Coordination Caseload and Make Adjustments as Necessary	DDS needs to track for fairness issues and for overall EOHHS data submission requirements, the number of cases per service coordinator and average amount per area office per region and by discipline (transition coordinator versus children's coordinator versus adult coordinator versus SC2).	1	The maturity level is at a 1. Data on caseload assignment requires analytic intervention by DDS Data Director, instead of production reports delivered directly to DDS senior staff. Data on service coordinator/individual assignment often remains outside of PCMS, and there is no way to import offline data into the system of record. The Next Generation system must allow for syncing of offline data and production reports around caseload to move to a Maturity Level of 2.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
061	Track DDS ICF/MR Capacity and Census	DDS tracks ICF/MR Capacity and Census.	1	This maturity level is at a 1. Standard reports, and business logic and data fields within PCMS improve capacity and census tracking, however manual steps including phone calls and emails are necessary for action to be taken in PCMS by a staff person.
063	Manage DDS Accounts and Appropriations	Tracking and monitoring DDS expenditures relative to legislative appropriated funds in DDS's budget (IMPACT).	2	DDS might consider upgrading the architecture and data base permissions from Microsoft Access to something more current and scalable across the enterprise, such as SQL Server or a web based application.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
070	Provision and Management of Waiver Assurances	Provision and management of waiver assurances as agreed upon with Medicaid.	1	The process is a high functioning Level 1, with many components related to data standardization, validation and focus on quality outcomes being at a Level 2. The lack of process and system interoperability, and the amount of staff time involved in creating the evidence package for CMS and MassHealth, as well as the large amount of 'off-line' documentation via email are the main reasons the process remains at a Level 1.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
71	Manage All DDS and HCBS Programs Reporting and Analysis Requirements	Ensure adequate reporting on all HCBS waiver programs through HCSIS reporting capabilities.	1	The process is at a high functioning Level 1. Many manual steps are in the analysis process, and should be. To produce meaningful analysis, data sources must be identified, business rules documented and quality assurance must be performed on all results. There is room for improvement in relation to more centralized data storage, minimizing off line data sources, and more automated report distribution through shared business intelligence and reporting tools. Front end data entry validation would improve report accuracy, and minimize some of the QA efforts, while interoperability between source data systems and NewMMIS will further enhance overall reporting goals.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
078	Manage DESE/DDS Program Individual Budget	Ensure accurate tracking of DESE/DDS program participants' budgets.	1	Data that is entered related to budgets is stored electronically, though in some cases can be out of sync with the budget of record. Dual data entry is required, first entering budget information into a spreadsheet, and then rekeying it into the PCMS CDS. As individual budgets change based on service frequency and duration, PCMS is updated, but offline budget spreadsheets may be outdated and not synced. The ability to directly load the spreadsheet data into PCMS, and to have two way syncing of budget numbers would move the process to a Level 2.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
099	Manage DDS Incident Reporting and Analysis	Incident reports are filed and completed in the Incident Reporting module in HCSIS. Statistical reports are generated on all incident reports filed in HCSIS on incident types, prevalence, etc. This process applies to adults who are DDS eligible.	2	The entry of an incident, notifications and tracking are highly automated, but the ability of an investigator to access risk and healthcare information is cumbersome. Narrative fields are used to supplement drop-down information, and are not meant to be relied on for data analysis

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
101	Manage DDS Medication Occurrence Reports	Details of medication errors/omissions are reported in the Medication Occurrence module in HCSIS.	2	The use of a standard web based data collection tool, with data validation and trigger generated alerts and status change makes the process more efficient. The ability to add events for Non DDS individuals (the exceptions) would streamline manual steps and improve efficiencies. Creating standards across DPH, DDS and DMH where applicable around MORS would improve interoperability and move the process to a level 3 maturity level

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
102	Perform DDS Consumers Medication Occurrence Reports Analyses	Statistical reports are generated on all medication occurrence reports filed in HCSIS on incident types, prevalence, etc.	2	The use of a standard web based data collection tool, with data validation ensures more accurate data for reporting and analysis. The ability to quickly add parameters and generate reports for analysis improves efficiency. By linking the back end database and including stored procedures for custom downloads within the reporting module, more analytic efficiencies could be realized. Additional ability to post reports to library's, bulletin boards or SharePoint/Commonwealth reporting warehouses would lead to a maturity level of 3.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
103	Manage DDS Consumers' Health Care Records	Consumer core demographic information is fed from Meditech and summary essential healthcare information is entered by providers into the Health Care Record module in HCSIS.	1	While the Health Care Records module provides a centralized, detailed, and structured record of important information related to an individual's health, the gathering and validation of the data is a cumbersome process and is not always updated or maintained in a timely manner. Linking to regional healthcare exchange networks would lead to an improved maturity level.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
104	Manage DDS Consumers' Restraints Reports	All restraints performed on consumers are reported (captured/entered) in the Restraint module in HCSIS.	2	The capturing of Restraint events is at a Level 2. Opportunity remains to improve some of the sampling processes of restraint events for review, as well as some of the interface parameters within the HCSIS Restraint Reports module. The sampling process is not system generated, nor is it random, and the system lacks parameter driven review of records within the interface. Some Restraints Analysis has shown there is room for improvement around front end data validation as well, in particular, time parameters related to the restraint event. These improvements would enhance the process, but would not achieve Level 3 Maturity.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
105	Perform DDS Consumers' Restraints Reports Analyses	Statistical reports are generated on all restraints reports filed in HCSIS on incident types, prevalence, etc.	1	Much of the data analysis required manual data manipulation and calculations within Excel. Data should not be manipulated outside the core database, as it can cause validation and reconciliation errors. DDS should develop a reporting database within HCSIS for this module, which allows for filtering, manipulation and calculations, within HCSIS. This functionality exists within the other HCSIS modules.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
106	Manage DDS Consumers' Death Reporting Information and Analysis	Consumer death reports are filed in the Death Reporting module in HCSIS. Statistical reports are generated on all death reports filed in HCSIS on causes and nature of death, etc.	1	While the death reporting submission and review workflow is highly automated and much more mature, there is a lack of integration and workflows to support the mortality review process. Expanding the HCSIS death reporting module to include the mortality review would move the process to a higher maturity level.
112	Manage DDS Individual Funds	DDS establishes and manages individual fund accounts for individuals living in ICF/MR and state operated homes.	1	The process involves paper requisitions for purchases, paper receipts, and heavy human intervention to track funds accurately. Putting the requisitions online and linking individuals purchases back to requisition numbers would improve the maturity level.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
117	Perform Population/Individual Outreach	<p>The Perform Population and Individual Outreach business process originates internally within the Agency to identify and notify prospective and current Individuals about Agency programs and services; create and provide linguistically and culturally appropriate information and educational materials to those same Individuals; and monitor outreach efforts and effectiveness. Individual data is analyzed to develop outreach methods and materials and to target specific populations. The Perform Population and Individual Outreach process targets both prospective and current Individual populations. <i>DDS works with individuals to maintain their Medicaid eligibility in order to ensure Waiver Eligibility. This process is covered in MITA-007.</i></p>	1	<p>The barriers from moving to a Level 2 Maturity Level are mainly the lack of interoperability between DDS and the Area Offices and Stakeholder networks, in relation to individual contact information, and letter generation and tracking. Data that resides in Area Offices or DDS Family Support Centers may be in conflict, or more or less up to date, than what is in PCMS, specifically contact information. Area Offices also maintain offline spreadsheets that may be originally sourced out of PCMS, but do not remain in synch.</p>

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
125	Cross-agency Communication and Record Sharing of Individual Information	This process shares a record for any individual who needs to be served by one of the other three agencies.	1	This maturity level is at a 1. The current process is through manual copying and faxing of records. Some information is available electronically, but most is in paper-based records. Strategies to increase the maturity level could be through providing other agency access to the healthcare record in HCSIS or through participation in regional healthcare exchanges.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
MITA 60	Formulate Budget	The Formulate Budget business process examines the current budget, revenue stream and trends, and expenditures, assesses external factors affecting the program, assesses agency initiatives and plans, models different budget scenarios, and periodically produces a new budget.	1	The process is at a Level 1 although it is nearly at a Level 2. The main barrier to Level 2 maturity is the lack of external access into DDS and MassHealth budget systems. Providers are not granted access to the CMS37 spreadsheet that is produced by DDS. Additionally DDS does not have the level of access within NewMMIS to download MassHealth budget scenarios, and must manually collect this information from within the NewMMIS. Improved interoperability, as well as a more secure and scalable tool for the CMS37, such as a custom database with security and permissions built in, rather than a spreadsheet to manage such a substantial budget submission to MassHealth would move the process to a Level 2.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
MITA 59	Manage FFP for MMIS	<p>The Federal government allows funding for the design, development, maintenance and operation of a federally certified MMIS.</p> <p>The Manage Federal Financial Participation business process oversees reporting and monitoring of Advanced Planning Documents and other program documents necessary to secure and maintain federal financial participation.</p> <p>These are the types of functions within this business area but this does not appear to be a stand-alone process.</p>	1	<p>The process is at a Level 1 although it almost meets the criteria for a level 2. It is split into two separate process tracks. For submitting information to MassHealth for FFP DDS submits a CMS 64 report via batch submission each month. This process is automated and then MassHealth takes over the process from there. DDS staff track and reconcile the actual FFP within financial systems. DDS also tracks staff time related to NewMMIS IT projects. These MMIS related tasks are tracked for staff weekly, and based on their staff role and position, an hourly bill back for FFP is computed. This system contains triggers, alerts and validated business rules to ensure proper tracking of claimable activities.</p>

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
MITA 56	Develop And Maintain Program Policy	The Develop and Maintain Program Policy Business Process responds to requests or needs for change in the agency's programs, benefits, or rules, based on federal or state statutes and regulations; governing board or commission directives; QIO findings; federal or state audits; agency decisions; and consumer pressure.	1	This process remains at a maturity level of 1 for several reasons. They include: lack of shared data and reporting access between DDS and MassHealth; the method of communication and policy modifications are tracked mainly with email and Microsoft Word documents, with no version control; and the lack of tools to track where in the process a policy change, and related communications about that change are. Most importantly, MassHealth does not recognize DDS as a true sister agency, requiring DDS to wait on hold, and go through the same procedures as an individual MassHealth enrollee, wasting staff time and resources for DDS.

2.6 Care Management

The Care Management business area includes processes that support individual and population care management and prevention. It contains a broad set of business processes related to client care (e.g., identify and manage special populations, develop and implement the treatment plan, monitor and manage treatment and services, and manage client outcomes), and collects information about these activities.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
005	Manage DDS Individual Service Prioritization	DDS administers and manages prioritization of services according to the individual's and family's strengths and areas of need.	1	Although some data is centralized and accessible by Area Offices, there often is redundant data kept by the Area Office in offline spreadsheets. This allows for data to potentially be in conflict between PCMS and the Area Offices. The ability to report within and across regions, utilizing time stamped events as part of business logic, would move this process closer to, if not fully, to a Level 2.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
007	Develop and Manage All DDS, ICF and HCBS individual Service Plans and Delivery	DDS develops and implements an Individual Support Plan for adults as required by regulation.	1	This Process is determined to be at Maturity Level 1. It did not meet Level 2 capabilities for 7 of 14 measures. The ASP is primarily manual and paper-based, making it challenging to meet legal timeframes for approval and access individual case data. No single, comprehensive source of individual data exists as some data is maintained in PCMS and other data is maintained in paper files (ISP).

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
090	Evaluate and Track the Risk of DDS Individuals	Risk reviews are conducted for individuals presenting high risk behaviors and risk plans are developed and tracked for adult DDS eligible individuals determined to be at risk.	1	The risk plans and action plans are stored in PCMS but there are no workflows to support the request, review and approval processes. There is limited structured data for reporting as the data is primarily entered as narrative. These are the areas that would need to be addressed to increase the maturity in the areas of timeliness, accuracy and level of effort.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
110	Manage DDS Core Indicators Project	DDS's participation in the national Core Indicator Project is reported on and tracked in the National Core Indicator module in HCSIS.	2	The sampling and collection of the data is an automated process, but the tracking of the sampling and scheduling is done through off-line spreadsheets. Incorporating this tracking within HCSIS would increase the maturity level of the process.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
013	Manage HCBS Waiver Programs' Individual Service Planning Evaluation	Service Coordinator Supervisor evaluations of ISP planning preparedness are tracked in the Service Coordinator Supervisor Tool module in HCSIS.	1	The sampling and notification process as well as the results of the review are automated and have supporting workflows to manage. The actual review, however, requires access to paper records. The current initiatives of implementing a standardized assessment and the ISP within HCSIS will increase the maturity of this process.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
118	Develop Discharge Planning and Transition Plan from Institutional Settings	The Develop Discharge Planning and Transition Plan from Institutional Settings business process uses Federal and State-specific criteria, rules, best practices and professional judgment to develop discharge planning and transition plans that optimize successful outcomes. It includes activities to track and assess the individual and his/her treatment progress during the episode of care and status at discharge, evaluate individuals' needs for ongoing care and support services, and establish a long term plan for continuing and/or sustaining community supports and services.	1	There is extensive notification required that is currently done through email. Some key data is stored in PCMS for reporting and operational purposes, but require the same information to be stored in multiple screens. Steps to increase the maturity level would include removing the redundancy (and potential errors) of data entry and developing triggered notifications based on planned and actual discharge dates.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
119	Develop and Manage DDS Family Support Plans	The Develop and Manage DDS Family Support Plans business process creates and implements family support plans for children and adults.	1	The process is at a Maturity Level of 1, though several components of the process are at a Level 2. Due to the nature of the outcome of this process, an individual being disenrolled from DDS or Waiver services, verbal communication is often used between Area Offices and DDS, and DDS Waiver Management Unit and the UMASS Medicaid Revenue Unit. The implications of improperly dis-enrolling an individual from services may outweigh the need to automate and integrate every single step of the process, and it may need to remain, for some components, at a Level 1.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
123	Admission to Institutional Settings	The Admission to Institutional Settings process includes activities related to a DDS individual moving from the community to a nursing facility, ICF.	1	While much of the admission and assessment data is eventually entered into PCMS, the data entry is cumbersome and not well aligned with the workflow. There are many notifications that need to be made and are currently done through email. There are also many paper-based data that needs to be compiled and forms to be completed throughout the process. Online referral packets, workflows and embedded notifications as well as process review screens to see what has been completed and what is still outstanding would increase the maturity of this process.

2.7 Accountability Management

The Accountability Management business area incorporates those processes that focus on program monitoring and compliance (e.g., auditing and tracking appropriateness and quality of care, adherence to program and grant requirements, adequate documentation, and fraud and abuse). This business area collects information about individual providers/contractors, clients, and services that are used for developing Federal, State, and program measures related to outcomes, performance, quality, and others. This process will mature with access to clinical data that improve the capability for monitoring and reporting quality and identifying fraud and abuse.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
096	DDS Manages Consumer Investigations including: Intake and coordination with DPPC on Investigations, Investigation of DDS Consumers Abuse/Mistreatment/Neglect Complaints and Management of DDS Consumers Investigations Documentation, Reporting, Analysis and Communication	DDS Investigations unit is notified by DPPC about any abuse/neglect allegations on DDS consumers and liaises with DPPC regarding investigation findings. Investigations unit conducts investigations following receipt of abuse allegations from DPPC in HCSIS. Investigations unit maintains electronic (in HCSIS) and paper files of all documentation, reports and communications on each case. The Investigations Processing System (IPS) interfaces with HCSIS Investigations module and produces correspondence to affected parties.	2	There are workflows to support the process, including gathering information, notifications and reviews throughout the investigation process. The interoperability of the file transfer process is through email notification and transfer/uploading of spreadsheets received from DPPC into HCSIS. Further automation of this component of the process would increase the maturity level of the overall process.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
116	Maintain Accreditation	The Maintain Accreditation process provides assistance to ICFs in achieving and maintaining the accreditation and credentialing necessary for program participation.	1	Manual lists are maintained, there are limited system edits or system validations that required assessment data has been obtained. The online access of the individual record during this process is not intuitive to access for reviewer, so a staff person is assigned to assist. There is also a need to compile and prepare paper-based clinical records for the review, which is time consuming. Increasing the maturity level could be done by implementing validation reports to check for required assessment data on an ongoing basis and automating the client list/reporting function.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
120	Manage Provider Agency Quality Assurance	DDS quality management/Surveys and Certifications system oversees DDS program providers' performance and ensures individual safety compliance in HCSIS - Quality Enhancement System (QE5).	1	The overall process is very broad and some components are much more mature - especially those components that are supported by the HCSIS QE5 modules. Three areas that would increase the maturity level of the process are the online entry of the provider request for a new site/new service, better methods for updating provider site and contact information system wide when there are mergers, name changes, etc. and the current initiative of implementing the standard assessment and ISP within HCSIS.

2.8 Support Services Management

The Support Services Management business area was created by BerryDunn for the Massachusetts MITA project to address processes related to the management of individuals and facilities that serve individuals. This business area collects information about items, services and processes that are specifically associated with the individuals' satisfaction, (e.g.: laundry, food service, etc.) as well as broader processes, related to the overall management of the facility (e.g.: grounds repair, air conditioning/heat, general building maintenance).

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
121	Support Services Management	Support Services Management includes processes that support individuals in an institutional setting. It contains a broad set of business processes related to supporting care of individuals (e.g., dietary, housekeeping, laundry), and collects information about these activities.	1	The process is at a low functioning Level 1. The majority of the process is handled through informal face to face discussions and phone calls. To improve satisfaction of individuals within the ICF/MRs that remain open, DDS should have an issue or order tracking tool related to each of these requests. This could be handled offline outside of PCMS, and does not require much of an investment in data and IT resources. The tool should track requestor, request type, date submitted, reviewed and resolved. If the request is not able to be fulfilled there should be an escalation or alternative solution offered and tracked.

Business Processes				
DDS #	Business Process	Process Description	Maturity Matrix Rating	Gap Analysis
122	Support Facility Infrastructure Management	Support Facility Infrastructure Management includes processes that are related to the operation of the facility, including engineering, maintenance, grounds, plumbing, etc.	1	This process is at a high functioning Level 1. There are formal tracking systems for every type of request, and more specific rules and steps that are applied based on the type of request, required skill sets to satisfy requests, and the total budgeted amount. Some components of the maturity model are not applicable to this process, since it is focused on the overall facility, and not specifically on the individual. Facility directors may consider augmenting this tool for DDS 121, for the services/tasks that do impact individuals. This process appears to work reasonably well though the steps and the processes are not always tracked systematically.

3.0 RECOMMENDATIONS


3.1 Business Capability Matrix Related Recommendations

In the prior sections BerryDunn has documented Maturity Level findings, and the gaps that need to be addressed to increase the individual maturity levels. Below, we provide DDS global recommendations based on observations across the 80+ individual work sessions and provided process documentation. Recommendations were initially scheduled to be delivered along with Activity 6, NextGen System Requirements. Due to the unforeseen suspension of the MITA project, BerryDunn offers these recommendations to DDS senior management, and MITA process participants as areas that may be addressed prior to any future NextGen system implementation.

Recommendations

Topic Area/Finding	Recommendation												
HCSIS The HCSIS system modules that DDS utilizes have led to process, reporting and analytical improvements. The system, as designed works well and is an improvement over PCMS functionality.	Ensure that the NextGen system can integrate or interface with the existing HCSIS modules, rather than trying to have a new vendor replicate them.												
Data Management DDS has opportunity to improve data management to further its ability to analyze data for operations and quality.	DDS can enhance data management by focusing on the following areas: <table border="1"> <tr> <td>Data Quality and Validation</td><td>DDS should work to ensure better data integrity by having system driven logic control what data can pass through its systems. This includes valid and relevant data values for all data captured, and ensuring that required data is entered in order to proceed further in the PCMS data process flow.</td></tr> <tr> <td>Eliminate Dual Data Collection/Entry</td><td>DDS should put procedures and workflows in place, supported by technology as needed, to ensure data is only collected and entered once, in the PCMS. Some of the points mentioned within the data management recommendations will facilitate this further: including web based intake and eligibility, broader access to the PCMS, and minimizing off-line data mining.</td></tr> <tr> <td>Off-line data mining</td><td>DDS should put controls in place to be sure all relevant data is centrally stored in a master database or warehouse that can feed into a cross agency data warehouse to further support the states Advanced Planning Document. This will involve process and data collection changes across the regions/areas as well as DDS.</td></tr> <tr> <td>Web based intake/eligibility</td><td>DDS should move the application/eligibility forms to be a web based application that area office service coordinators can fill out. This will minimize paperwork and data entry, improve determination timelines standardize data collection and ensure more accurate data.</td></tr> <tr> <td>Broader PCMS access</td><td>DDS should consider the use of more technology for field based staff, including laptops, tablets or other tools that will allow remote access to the PCMS.</td></tr> <tr> <td>Reporting</td><td>DDS should ensure all data is centralized in a master data repository to improve reporting efficiencies. Currently there is a PCMS repository, but often off-line data files must be linked to this repository to enable queries and report writing to occur.</td></tr> </table>	Data Quality and Validation	DDS should work to ensure better data integrity by having system driven logic control what data can pass through its systems. This includes valid and relevant data values for all data captured, and ensuring that required data is entered in order to proceed further in the PCMS data process flow.	Eliminate Dual Data Collection/Entry	DDS should put procedures and workflows in place, supported by technology as needed, to ensure data is only collected and entered once, in the PCMS. Some of the points mentioned within the data management recommendations will facilitate this further: including web based intake and eligibility, broader access to the PCMS, and minimizing off-line data mining.	Off-line data mining	DDS should put controls in place to be sure all relevant data is centrally stored in a master database or warehouse that can feed into a cross agency data warehouse to further support the states Advanced Planning Document. This will involve process and data collection changes across the regions/areas as well as DDS.	Web based intake/eligibility	DDS should move the application/eligibility forms to be a web based application that area office service coordinators can fill out. This will minimize paperwork and data entry, improve determination timelines standardize data collection and ensure more accurate data.	Broader PCMS access	DDS should consider the use of more technology for field based staff, including laptops, tablets or other tools that will allow remote access to the PCMS.	Reporting	DDS should ensure all data is centralized in a master data repository to improve reporting efficiencies. Currently there is a PCMS repository, but often off-line data files must be linked to this repository to enable queries and report writing to occur.
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Topic Area/Finding	Recommendation								
Cross Agency Data Exchange DDS has indicated several opportunities exist for more coordinated data sharing, and that system or data access, across agencies, is a big barrier. Examples include DCF, DESE, DOC, as well as other EOHHS agencies.	To improve Cross Agency Data Coordination and System Access DDS can focus on a few core areas. <table border="1"> <tr> <td>Interagency Service Agreements</td><td>(ISAs) are intended to support sharing of data, including information that may impact eligibility decisions, e.g.: MassHealth benefit levels, DOR income, etc.). DDS should ensure ISAs are complied with by all parties.</td></tr> <tr> <td>Improved Process integration and workflows</td><td>EOHHS agencies rely on DDS for information related to eligibility, claims, etc. (E.g.: MassHealth for CMS approved waivers). Working together on mutual process integration and information sharing should improve transparency and data exchange and speed up workflows.</td></tr> <tr> <td>Data exchange protocols</td><td>Additional process automation for data exchanges will eliminate DDS staff time spent on creating files, uploading, downloading and locating files to be exchanged and integrated. These automations would need to occur both for DDS and the outside agency.</td></tr> <tr> <td>System Access</td><td>Assuming ISA's are in place, allowing access to additional system modules and fields within outside agencies should streamline operations. (e.g.: NewMMIS)</td></tr> </table>	Interagency Service Agreements	(ISAs) are intended to support sharing of data, including information that may impact eligibility decisions, e.g.: MassHealth benefit levels, DOR income, etc.). DDS should ensure ISAs are complied with by all parties.	Improved Process integration and workflows	EOHHS agencies rely on DDS for information related to eligibility, claims, etc. (E.g.: MassHealth for CMS approved waivers). Working together on mutual process integration and information sharing should improve transparency and data exchange and speed up workflows.	Data exchange protocols	Additional process automation for data exchanges will eliminate DDS staff time spent on creating files, uploading, downloading and locating files to be exchanged and integrated. These automations would need to occur both for DDS and the outside agency.	System Access	Assuming ISA's are in place, allowing access to additional system modules and fields within outside agencies should streamline operations. (e.g.: NewMMIS)
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System of Care Design PCMS, as it exists for DDS, is structured like an acute care system. The system does not have an episodic, chronic illness, or case tracking abilities. An extreme example of this is that prior admission information for an individual is not available, even if the individual is re-admitted to the same ICF/MR.	The NextGen system must address the critical business need of understanding the case history of DDS individuals. Examples that were identified include ability to tend and present certain intellectual, behavioral, or clinical data elements, and the concept that 'the record follows the individual' should they change settings. DDS individuals receive DDS supports over a lifetime, whereas the existing PCMS system was designed to capture one time encounters/events.								



Commonwealth of Massachusetts Executive Office of Health and Human Services

Next Generation System Planning Project

Deliverable 6B (DMH); Business Capability Matrix (Draft)
(Based on MITA SSA-Version 2.0)

November 8, 2011

Erin Ferrari, Project Manager
The Commonwealth of Massachusetts
Executive Office of Health and Human Services
One Ashburton Place, 11th Floor
Boston, MA 02108
erin.ferrari@state.ma.us

Charlie Leadbetter, Project Principal/Project Manager
BerryDunn
100 Middle Street, PO Box 1100
Portland, ME 04104-1100
cleadbetter@berrydunn.com

Deliverable 6B (DMH) Business Capability Matrix

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Appendices:

Appendix A: Business Process Template (Definitions)

Appendix B: Maturity Matrix (Definition)

Appendix C: Completed Business Process Templates

Appendix D: Completed Maturity Matrices for Business Processes

EXECUTIVE SUMMARY

The primary systems that support the business of the Departments of Developmental Services (DDS), Mental Health (DMH) and the Public Health (DPH), Facilities have been developed over time through an innovative approach of describing these solutions as Modules within the Medicaid Management Information System (MMIS) operated by the Executive Office. This approach has allowed the agencies to claim enhanced developmental federal dollars for the creation of these solutions and enhanced operational federal dollars for ongoing operations and maintenance. As these systems near “end-of-life”, the agencies have been talking about a replacement or Next Generation System. In order for any solution to continue to qualify for enhanced federal matching dollars, the current systems must be treated like the MMIS; specifically, they fall within the federal requirement to have a Medicaid Information Technology Architecture (MITA) state-self assessment performed.

The MITA initiative was undertaken in 2002 by the Centers for Medicare and Medicaid Services (CMS) to standardize yet stimulate and accelerate business and technological transformation of the Medicaid enterprise in all States. MITA presents a framework for states that describes business capabilities and technical capabilities in the present (the As-Is) and a corresponding vision of potential business and technology capabilities and integration in the future (the To-Be). The Business and Technology Capability Matrices, when complete, include a series of snapshots of how business improvements and enabling technology and integration may move an agency along the path from the current state to the potential To-Be state.

The business capability levels focus on describing the distinct technological and operational progress over time as agencies progress their business operations and technologies towards the future vision. This series of snapshots is called the Maturity Model, and provides agencies with both a target for further business transformation and technical improvements and a measure for how far along they are on the path to CMS’ ultimate vision of an integrated and interoperable business operation supported by enabling technology. (Adapted from Behavioral Health MITA Version 1.0).

For the Department of Mental Health, the MITA As-Is State Self Assessment (SS-A) began with a goal setting effort for the agency and progressed to the development of a list of business processes to be reviewed as part of the SS-A. The business processes were selected from the 76 MITA-defined Business Processes and augmented with related processes that are done for DMH, central to the agency’s business, conducted on DMH solutions and similar to MITA business processes but not done specifically for the state Medicaid agency (MassHealth). While many processes are performed for DMH business using the agency’s own technology solutions, the goal of the Commonwealth is to achieve greater interoperability between DMH systems and MassHealth’s NewMMIS system in the future. In Section 2.0 of this report, a table shows the various processes and describes the extent to which a process is MITA Specific or MITA related and thus requires collaboration or linkages between DMH and MassHealth. In addition, business processes not related to MITA are categorized as Agency Specific Processes (ASP) and indicated as such on the table.

The MITA Business Process Model provides the foundation for developing the vision, grounded in the business processes identified today (adapted from Behavioral Health MITA Version 1.0). Ultimately, these MITA artifacts become the baseline against which requirements are gathered

for the Next Generation Solution; the As-Is capabilities are the minimum requirements to support the business and the To-Be capabilities are the minimum level of new functions and features that the proposed solutions must also support for agency growth. Finally, these MITA artifacts will allow the Next Generation Solution efforts to qualify for the enhanced federal funding.

On the pages that follow, the project approach and methodology are described, the various business processes and their relationship to the MITA processes are depicted and process specific maturity levels are presented and explained.

1.0 PURPOSE

1.1 Background

The Commonwealth of Massachusetts Executive Office of Health and Human Services (EOHHS) engaged BerryDunn to provide a Medicaid Information Technology Architecture (MITA) State Self-Assessment (SS-A) for the Department of Developmental Services (DDS), the Department of Mental Health (DMH), and the Department of Public Health (DPH). These three EOHHS Agencies each operate their own systems, based on the MEDITECH Corporation acute hospital software that has been enhanced to meet the individual needs of the Agencies, that is then linked to MassHealth's New Medicaid Management Information System (NewMMIS). This collective MITA C-2 SS-A is referred to as Component Two of the EOHHS MITA Initiative. Component One was the "As Is" analysis of the Medicaid business process and technical capability assessments, completed in October 2008 and Component Three will be the "To Be" full scale MITA analysis of MassHealth based on the May 26, 2009 implementation of the NewMMIS.

In preparation for this project, DDS, DMH and DPH evaluated their own business models and mapped these against the eight high-level MITA-defined Business Areas and the 76 MITA-defined Business Processes. In Massachusetts many of the MITA-defined Business Processes are performed for the Agencies by MassHealth, some of the MITA-defined Business Processes are performed specific to the Agency, and there are a number of state-specific processes (SSPs) within these 8 MITA-defined Business Areas that were identified. For example, the initial MITA-defined Business Process is Determine Eligibility: for all Agencies, determining eligibility for Medicaid is performed by MassHealth but each Agency performs another eligibility determination for their own services. Therefore, the Determine Eligibility process is MITA related for each Agency but not Medicaid-specific.

Teams of Subject Matter Experts from the state Agencies and from the contractor were assembled and three independent MITA-SSA efforts were undertaken in parallel during 2011.

1.2 Agency Background

The Department of Mental Health (DMH) provides community-based continuing care services to children, adolescents, and adults. To be approved for services, an individual must meet specific clinical criteria, be determined in need of DMH services, and have no other means of obtaining the service. In SFY2010, DMH served 27,813 individuals, including approximately 3,500 children and adolescents. DMH operates two psychiatric continuing care hospitals, five community mental health centers (three of which contain inpatient units), psychiatric units in two DPH-operated hospitals and contracts for 30 continuing care beds in a private psychiatric facility for a total inpatient capacity of 658 adult beds and 30 adolescent beds. DMH annually performs statutory evaluations and/or other forensic services to nearly 16,000 individuals through the adult and juvenile court system.

DMH's Community Based Flexible Services (CBFS), a new contracted service model which began July 1, 2009, is the cornerstone of the Department's community mental health system for adults. CBFS provide rehabilitative interventions and supports in partnership with individuals and their families to promote and facilitate recovery. CBFS enhanced and transformed service

components previously provided in residential and community rehabilitative programs to meet consumer need and preference.

Other DMH state-operated and contracted services providing rehabilitation and support to adults include case management, clubhouses, and Program of Assertive Community Treatment (PACT). In addition, DMH offers services focused on recovery and client empowerment. In a shift towards consumer-directed care, DMH funds and supports a variety of consumer initiatives, including peer and family support, peer mentoring, warm-lines and recovery learning communities. Most community-based programs for children and youth provide resilience building, rehabilitative and supportive functions in a flexible manner to match the goals and needs of the individual client. These include case management, after-school day services, supported education and skills training, therapeutic foster care, individual and family flexible support, including in-home treatment, mentoring and respite care, and a range of residential services, provided in group care, apartment, or home settings. For children with severe needs, DMH has structured its contracts so that a residential level of care can be provided in a child's home if clinically appropriate.

1.3 MITA Overview

The DMH team used a combination of the MITA 2.0 Process Model and the SAMHSA Behavioral Health MITA Business Process Model (Version 1.0) to organize the various business processes that were documented. For the DMH SS-A, all of the Business Processes were aligned with the seven Behavioral Health MITA Business Areas.

The 76 MITA-defined Business Processes and the starting set of Agency Business Processes provided by DMH prior to the project start served as the baseline from which the final list of Business Processes was developed. Working in conjunction with DMH subject matter experts, the starting set of processes were vetted for applicability and relevance to DMH's operations. The result of this vetting was a consolidated and condensed list of processes which were then organized in a logical sequence based on how a client moves through DMH services. The final list of processes were each compared, individually, to the SMHSA Behavioral Health MITA Business Process Model and each relevant process was linked to one of the 7 Business Areas as defined in the SAMHSA model.

It is important to note that even though DMH does not perform every key Business Process for Medicaid (as defined in the MITA Business Processes), it does perform many of the same business processes internally. As a result of the development of the Process list, only a few Agency Specific Processes (ASP) that were identified as critical to the DMH enterprise had not already been identified in the SAMHSA MITA Model. These ASPs concerned specific rules or laws that govern medical record maintenance and release as well as the legal process of guardianship and commitment for DMH clients. In Section 2.0, each business process is listed and identified as MITA – MITA Related – Agency Specific Process in the appropriate column.

A MITA Maturity Model and Maturity Matrix were developed for the project based on a review of:

1. Relevant MITA Framework 2.0 chapters and appendices.
2. Relevant SAMSHA Behavioral Health MITA Framework chapters and appendices.

Using information gleaned from the source documents, a Draft MITA Maturity Model methodology and template was created and initially reviewed by Department of Mental Health (DMH) leads. After a review and discussion of maturity measures - specifically for Levels 1, 2 and 3 - an updated Maturity Model was created and circulated to Department of Developmental Services (DDS) and Department of Public Health (DPH) state team leads for review and comment. Comments from each agency were received and updates were made to the model and one common Maturity Model and Maturity Matrix was finalized for use across all three agencies for three different business models.

The Maturity Model assesses each Business Process' maturity on a scale of 1 to 3 across these following Qualities and Measures:

- Interoperability
 - Technical, Semantic and Process Interoperability
- Timeliness of Process
- Data Access and Accuracy
 - Standardization of Data and Format
 - Storage of Data
 - Access to Data
 - Reporting
- Effort to Perform/Level of Effort
- Cost-Effectiveness
- Quality and Accuracy of Process Results
 - Accuracy of Results and Validation Process
- Utility or Value to Stakeholders

Documents Used to Inform the SS-A

- A single Template - based on the MITA Business Process Template - was used to document each Business Process across each of the Business Areas
 - A separate Template was completed for each Process.
- A MITA Maturity Matrix was developed specifically for this project using MITA Maturity levels as defined in MITA 2.0 in conjunction with the Behavioral Health MITA guidance and some language adapted to reflect actual business processes that are done in the Department of Mental Health.
 - A separate Maturity Matrix was completed for each Process

Copies of these templates are included as Appendix A and Appendix B of this report.

1.4 Methodology

The Business Process review and Maturity Capability determination was carried out by a committed team of DMH staff along with vendor staff. The specific steps taken to complete effort are delineated below:

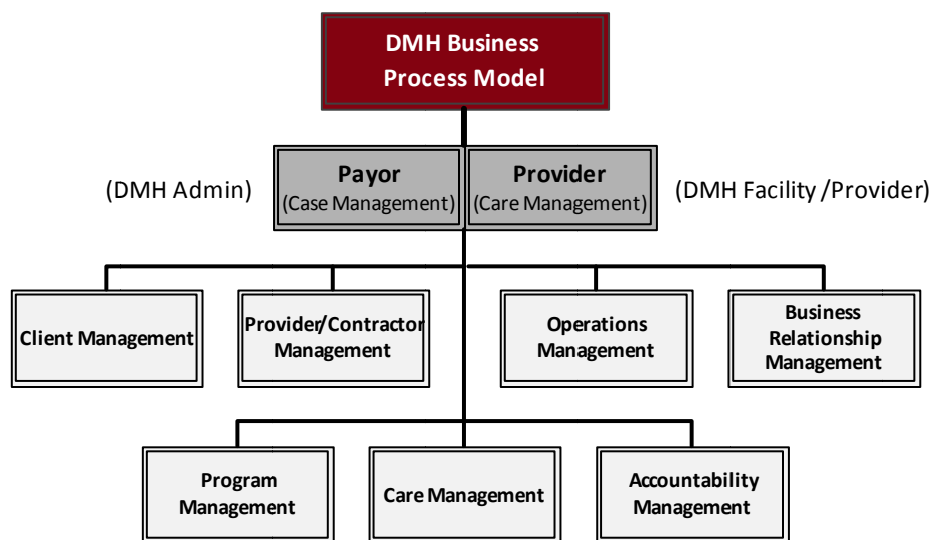
- a. DMH developed an initial Process list and identified relevant MITA processes in RFR
- b. DMH assembled a core MITA team of staff to drive the planning, business process review and maturity level determination efforts
- c. A team of subject matter experts (SMEs) from DMH worked with the core MITA team to refine the Process list

- d. Vendor and DMH staff contributed to the development of a maturity matrix to be used across all three agencies
- e. DMH identified SMEs to participate in each Business Process meeting
- f. Work sessions were scheduled across a period of three months
- g. DMH and the vendor team held 30 work sessions with 114 unique participants – some of whom attended more than one session - each individual contributed to the completion of the Business Process Templates and Maturity Matrices
- h. At each work session the MITA Maturity Matrix was completed by the DMH core MITA team
- i. At each work session the Business Process Template content and operational details were captured for each Process
- j. Completed Business Process Templates underwent a thorough review process with DMH core MITA team and SMEs
- k. Business Process Templates were updated to incorporate DMH feedback and then finalized
- l. Approved templates and matrices were uploaded to a common site (Knowledge Link) accessible by DMH and vendor staff
- m. Completed Maturity Matrices were analyzed and those results are included in this report.

1.5 Adaptation of Model Charts for DMH

Throughout the Business Capability Findings Section, charts are used to illustrate the business process whether from MITA or SSP and how they fit into the DMH workflow. Charts were adapted for each major business process area from the SAMHSA Behavioral Health MITA Business Process/Data Model Document, Version 1.0, Medicaid Information Technology Architecture, Contract Number GS-35F-0201R, Task Order No. CMS-HHSM-500-2006-00130G, September 2, 2008¹

The chart below shows the overall organization of business areas for DMH. DMH has both payor and provider roles to fill as DMH facilities provide direct services to consumers and DMH also contracts with agencies to provide direct services.



At the beginning of each Business Area section in 2.0 a chart displays the business processes used at DMH. The charts display a hybrid of the complete set of business processes as identified in either MITA 2.0 or the above noted SAMHSA MITA related document plus a few additional business processes that DMH identified as important to their mission.

A MITA Maturity Matrix was developed specifically for this project using MITA Maturity levels as defined in MITA 2.0 in conjunction with the Behavioral Health MITA guidance and some language adapted to reflect actual business processes that are done in the Department of Mental Health. The Maturity Matrix was shared with DMH and accepted for use in this project.

A business capability describes a business process at a specific level of maturity measured on a scale of one to five. Business capability statements include definitions of qualities that represent measurable differences between each level.

¹ Behavioral Health MITA Business Process/Data Model Document Version 1.0 Medicaid Information Technology Architecture Contract Number GS-35F-0201R, Task Order No. CMS-HHSM-500-2006-00130G September 2, 2008

2.0 MITA BUSINESS CAPABILITY FINDINGS

DMH carefully reviewed each of the 76 MITA-defined business processes in terms of whether each was an activity that DMH performs for or with MassHealth, the State Medicaid agency, whether it was related to a MITA-defined process or whether it was a process performed solely for DMH. Some processes in the MITA Business Areas of Business Relationships Management and Program Management are done for Medicaid and the remaining processes are defined using similar MITA language, are critical to DMH's operations but not performed strictly for or with Medicaid.

2.1 CROSSWALK OF DMH BUSINESS PROCESSES

The table below contains the various processes documented for DMH:

- Column **A** includes the Business Process title
- Column **B** indicates that DMH performs this process for the Medicaid program
- Column **C** indicates that DMH performs a MITA Related Process but not specifically for the Medicaid program
- Column **D** indicates a DMH Agency Specific processes

A	B	C	D
Business Process Title	MITA Process	MITA Related Process	Agency Specific Process
Client Management			
Determine Appropriateness for DMH Services		X	
Determine Appropriate DMH Services		X	
Manage Patient/Client Information		X	
Manage Data Completeness Associated with Patient Medical Records		X	
Incident Management		X	

Business Process Title	MITA Process	MITA Related Process	Agency Specific Process
Provider/Contractor Management			
Manage Compliance of Client Privacy, Security, and Confidentiality Regulations		X	
Manage Provider/Contractor Procurement		X	
Manage DMH Contracts		X	
Manage Licensing Process		X	
Operations Management			
Manage Insurance Information, Billing, Claiming and A/R Maintenance		X	
Manage General Ledger		X	
Business Relationships Management			
Establish Business Relationship	X		
Manage Business Relationship	X		
Manage Business Relationship Communications	X		
Terminate Business Relationship	X		
Program Management			
Develop and Maintain Program Policy	X		
Develop Agency Goals and Initiatives	X		

Business Process Title	MITA Process	MITA Related Process	Agency Specific Process
Care Management			
Coordinate Service Delivery & Tracking Service Delivery		X	
Scheduling			X
Develop Plan Goals, Methods and Outcomes		X	
Develop ISP / IAP, Goals and Outcomes		X	
Manage Data Quality Associated with Patient Medical Records		X	
Manage Release of Medical Record Information			X
Manage Order Entry & Manage Pharmacy Services			X
Discharge Patient/Client		X	
Manage Consumer Funds			X
Coordination of Legal, Forensic, Guardianship			X
Accountability Management			
Receive, Process Service Delivery Information from Contract Provider		X	
Collaborate and Coordinate Care of Shared Clients with other State Agencies		X	
Develop, Monitor and Manage Performance Measures and Reporting		X	
Accreditation Process		X	

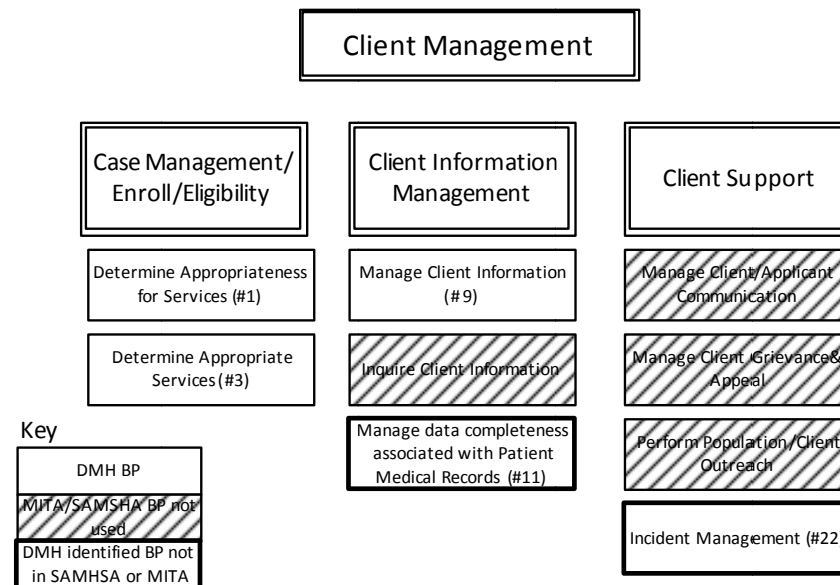
In the following sections, 2.2 through 2.7, each section begins with the charts mentioned in 1.5.

Each business area chart displays the business processes addressed during this Self Assessment.

Each chart contains a key that explains which processes were included for the DMH analysis, which ones (shaded) were part of the SAMHSA model but not addressed for DMH, and which ones (bold outline) were identified as critical to DMH though not originally in either the MITA or SAMHSA model.

Each business process box that DMH does perform and that were addressed during Activity 3, include the business process number (#) for easy reference.

2.2 CLIENT MANAGEMENT

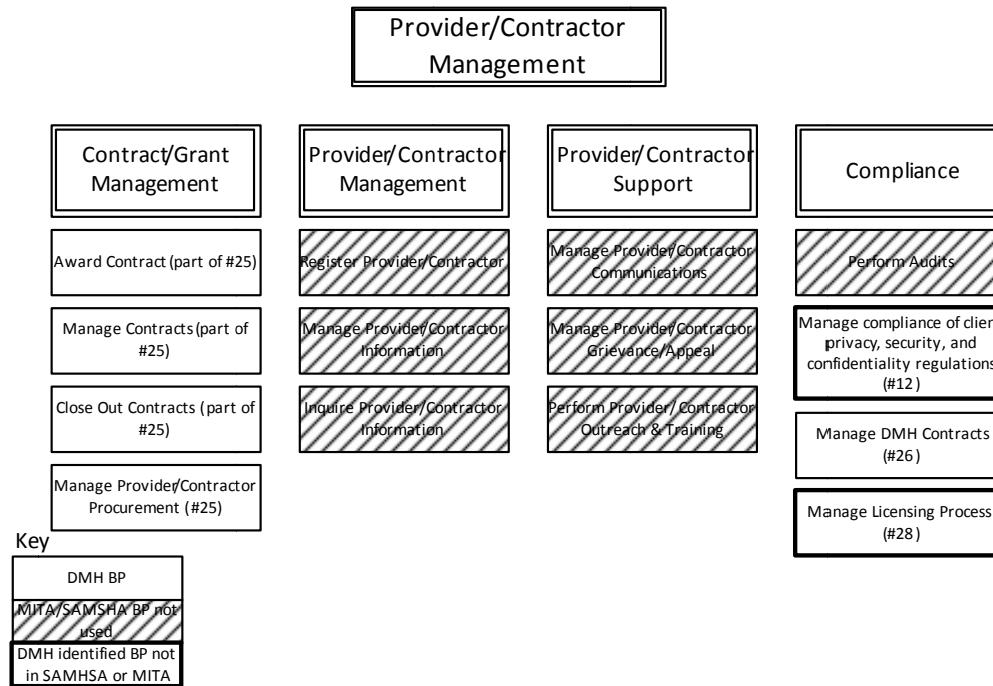


The Client Management business area is a collection of business processes involved in managing client data and communications, and focuses on outreach to current and potential clients, capturing and maintaining client demographic details, and supporting clients' need for service information. The goal for this business area is to manage client data and communications to improve program participation and healthcare outcomes; future transformation is towards more client self-directed decision making.

Business Process				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
# 1	Determine Appropriateness for DMH Services	Determine appropriateness for DMH services and meets DMH criteria.	1	Different systems for inpatient versus community shared in data warehouse and paper; labor intensive process, mostly manual.
# 3	Determine Appropriate DMH Services	The Determine Service Need/Availability business process determines what service(s) an individual needs and whether the needed service is available. This includes mobile ESP.	1	Different systems for inpatient versus community shared in data warehouse and paper; labor intensive process, mostly manual.
# 9	Manage Patient/Client Information	The Manage Patient/Client Information business process is responsible for managing all operational aspects of patient/client data, which is the source of comprehensive information about patients/clients, and their interactions with the organization. The patient/client database includes demographic, financial, socio-economic, treatment, service, health status, and outcomes information. Business processes that generate patient/client information send requests to the patient/client database to add, delete, or change this information. The patient/client database provides access to patient/client records to internal and external users. Include ESP.	1	Meets Level 2 criteria in interoperability and most of data access and accuracy. Some data, however, is only available on paper. Data corrected in one system does not automatically correct in another part of the same system.

Business Process				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
# 11	Manage data completeness associated with Patient Medical Records	This business process identifies data deficiencies (e.g. if the medical record is incomplete or if it is missing certain assessment or diagnosis data) and notifies clinician to correct data deficiencies (incomplete records).	1	Primarily a paper based process with little standardized format or centralized data. Process is labor intensive
# 22	Incident Management	Documentation of injuries, medication errors, falls and other safety related issues and outcomes, including investigations.	1	Comprehensive SQL database (IA Real) exists to manage investigations; not interoperable with other Office of Investigations systems; limited access to clinical data; incident data collected manually and then entered into IA Real.

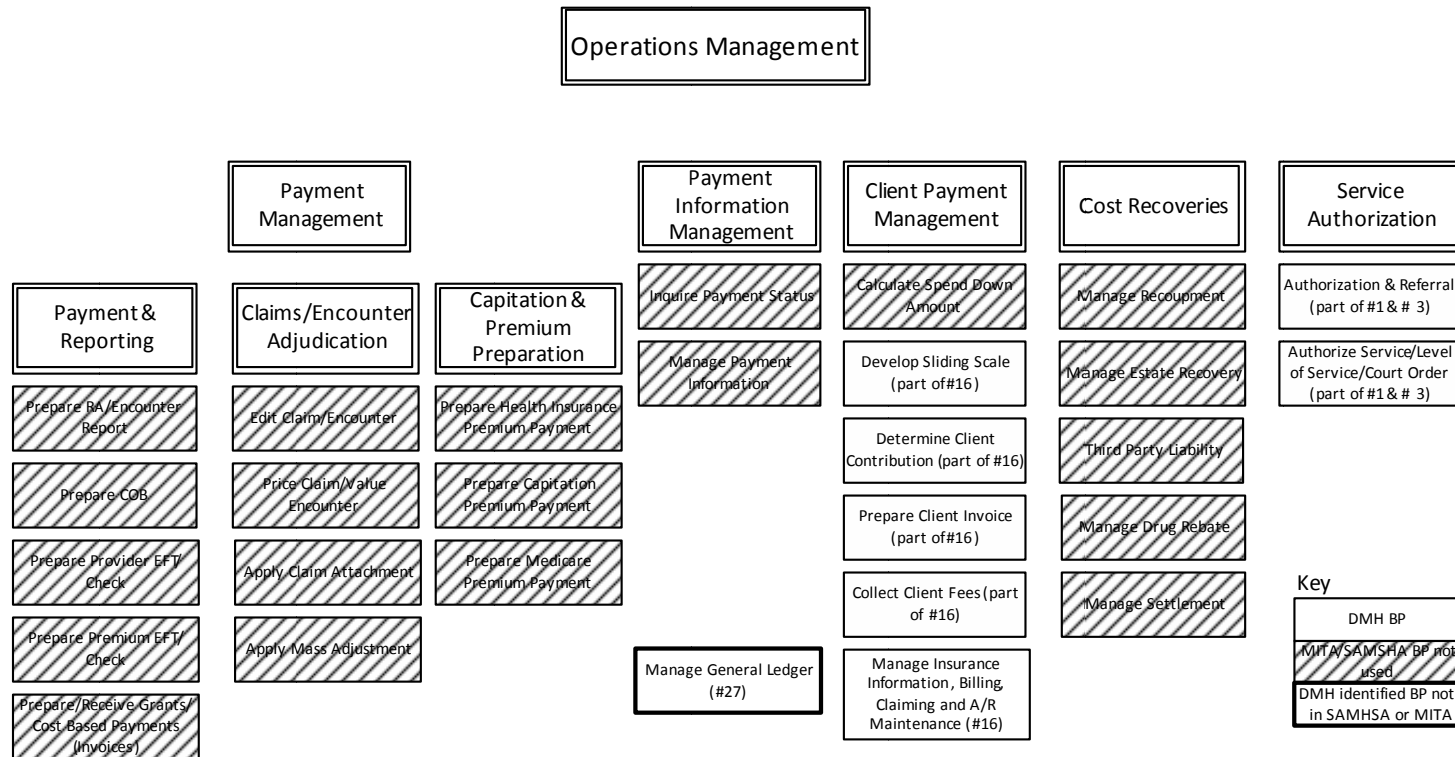
2.3 PROVIDER/CONTRACTOR MANAGEMENT



The Provider/Contractor Management business area is a collection of business processes that focus on recruiting and managing potential providers/contractors, maintaining information on and communications with providers/contractors, and provider/contractor compliance monitoring. This business area encompasses the many types of BH service delivery contracts (e.g., provider agencies, BHOs, non-medical support services, primary care physicians), the many types of agency administrative services contracts (e.g., data analysis, use of third party payment systems), and State contracts for services via intermediaries such as counties, MH/SA networks, and community-based organizations. All these are treated as a single business process in this model because the activities are the same, even though the input and output data and business rules may differ.

Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
# 12	Manage compliance of client privacy, security, and confidentiality regulations	This business process manages the compliance of HIPAA client privacy, security, and confidentiality regulations.	1	Paper based process; data not stored centrally; labor intensive.
# 25	Manage Provider/Contract or Procurement	The Manage Provider/Contractor Procurement business process develops and coordinates RFPs, RFRs, RFQs, RFIs, etc. and the provider/contractor selection process.	1	Some electronic support to this process – MMARS, Comm-Pass & EIM; otherwise manual and paper based.
# 26	Manage DMH Contracts	Manage DMH Contracts	1	Minimal electronic data exchange – MMARS to EIM and EIM to MHIS; mostly paper based. No electronic monitoring of contract balances; would benefit from system that automatically compares claims payment with contract balances.
# 28	Manage Licensing Process	Manage Licensing of DMH contracted providers, non-community hospital psychiatric units and private psychiatric units	1	Multiple electronic systems used with data shared via the DMH data warehouse; manual process to support tasks with data entered afterwards. Would benefit from system that ties licensing with contracts and manages status.

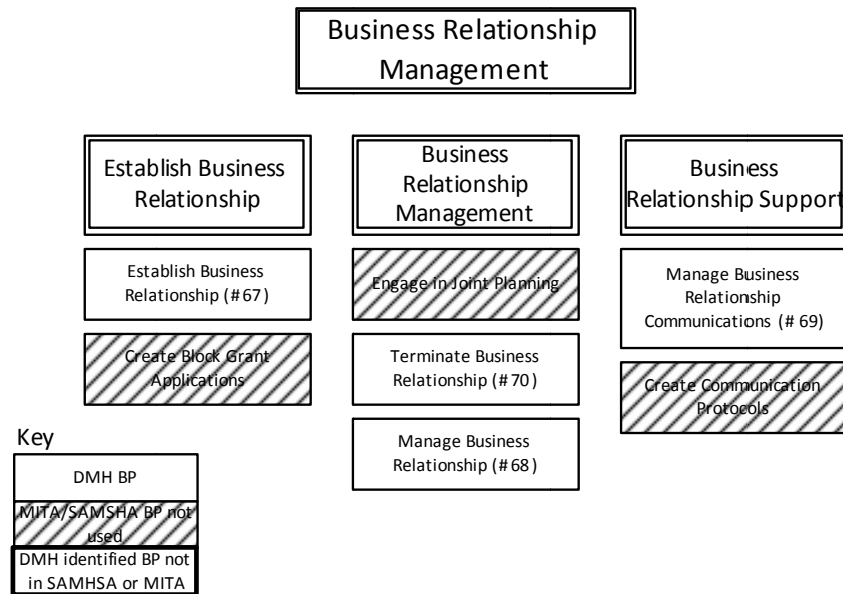
2.4 OPERATIONS MANAGEMENT



The Operations Management business area includes operations that support the funding and payment of services and service providers. It supports funds management and the receipt and distribution of funds and payments, and all information associated with agency funding to and from all sources. Most States currently have automated operations that support at least some of these activities. Common activities include allocating and monitoring grants and funding distribution, and managing and facilitating payment processes both internally and with State Medicaid and other State payer programs.

Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
# 16	Manage Insurance Information, Billing, Claiming and A/R Maintenance	The Manage Billing and Claims business process includes preparing bills for submission, submitting bills, processing payments and adjustments	1	This process had a areas that reached a level 3 score but also contains some very labor intensive, manual processes that tend to negate the electronic functions. This is a process that should be one of the first to be improved and brought to national standards, especially with use of 270/271 or valid alternative to capture and maintain eligibility and 835/837 with all contract providers.
# 27	Manage General Ledger	The Manage General Ledger Business Process tracks budget, funding and expenditures.	1	Some data is exchanged electronically – MMARS to EIM and EIM to MHIS; substantial staff time is required

2.5 BUSINESS RELATIONSHIPS MANAGEMENT

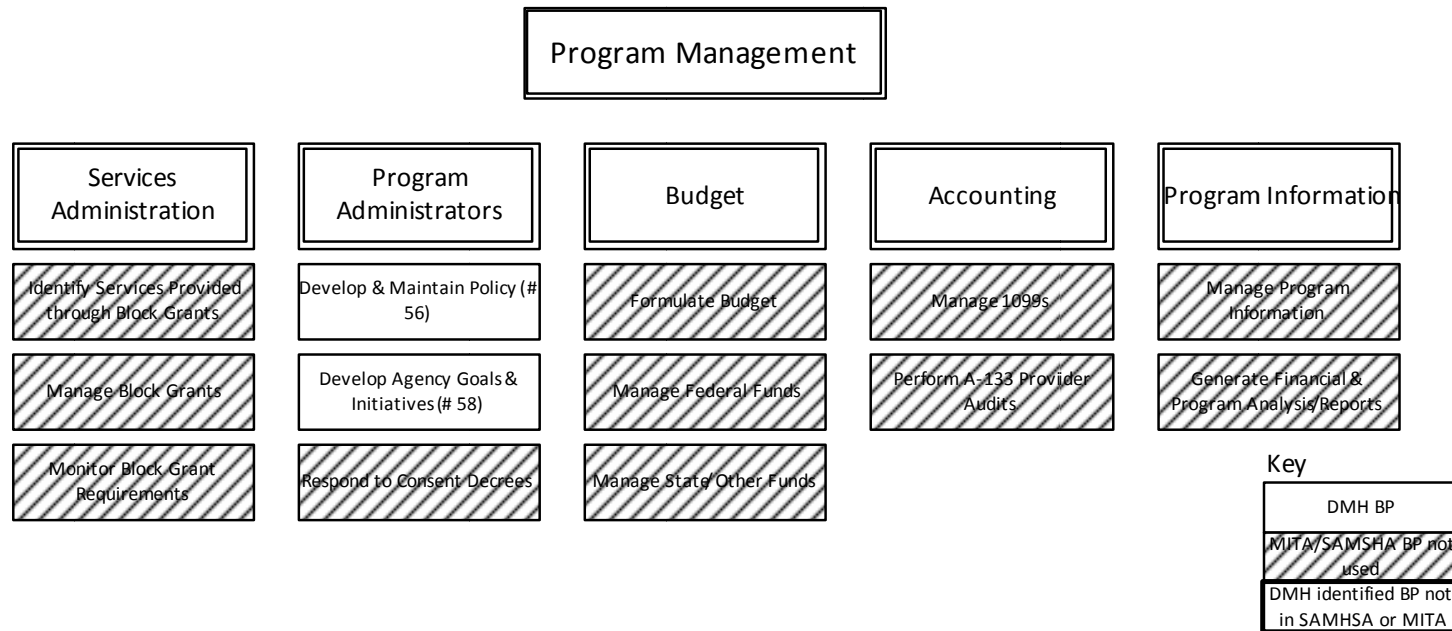


The Business Relationship Management business area is currently represented in many States as a component of Program Management. It is shown here as a separate business area because collaboration between in-State agencies and inter-State and Federal agencies is increasing in importance. This business area owns the standards for interoperability between the agency and its partners. It contains business processes that have a common purpose (e.g., establish the interagency service agreement, identify the types of information to be exchanged, identify security and privacy requirements, define communication protocol, and oversee the transfer of information).

Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
# 67	Establish Business Relationship	The Establish Business Relationship business process encompasses activities undertaken by the State Medicaid agency to enter into business partner relationships with other stakeholders. These include Memoranda of Understanding (MOUs) with other agencies, electronic data interchange agreements with providers, managed care organizations, and others, and CMS, other Federal agencies, and Regional Health Information Organizations (RHIOs).	1	Primarily, a manual and paper driven process; labor intensive; individual MOUs for different purposes.
# 68	Manage Business Relationship	The Manage Business Relationship business process maintains the agreement between the State Medicaid agency and the other party. This includes routine changes to required information such as authorized signers, addresses, coverage, and data exchange standards.	1	Primarily, a manual and paper driven process; labor intensive; would benefit from electronic data exchanges to maintain/update data between agencies.
# 69	Manage Business Relationship Communications	The Manage Business Relationship Communication business process produces routine and ad hoc communications between the business partners.	1	Primarily, a manual and paper driven process; labor intensive.

# 70	Terminate Business Relationship	The Terminate Business Relationship business process cancels the agreement between the State Medicaid agency and the business partner.	1	Primarily, a manual and paper driven process; labor intensive.
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2.6 PROGRAM MANAGEMENT



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The Program Management business area houses the strategic planning, policy-making, monitoring, and oversight activities of the agency. These activities depend heavily on access to timely and accurate data and the use of analytical tools. This business area uses a specific set of data (e.g., information about the benefit plans covered, services rendered, expenditures, performance outcomes, and goals and objectives) and contains business processes that have a common purpose (e.g., managing the Medicaid program to achieve the agency's goals and objectives such as by meeting budget objectives, improving customer satisfaction, and improving quality and health outcomes).

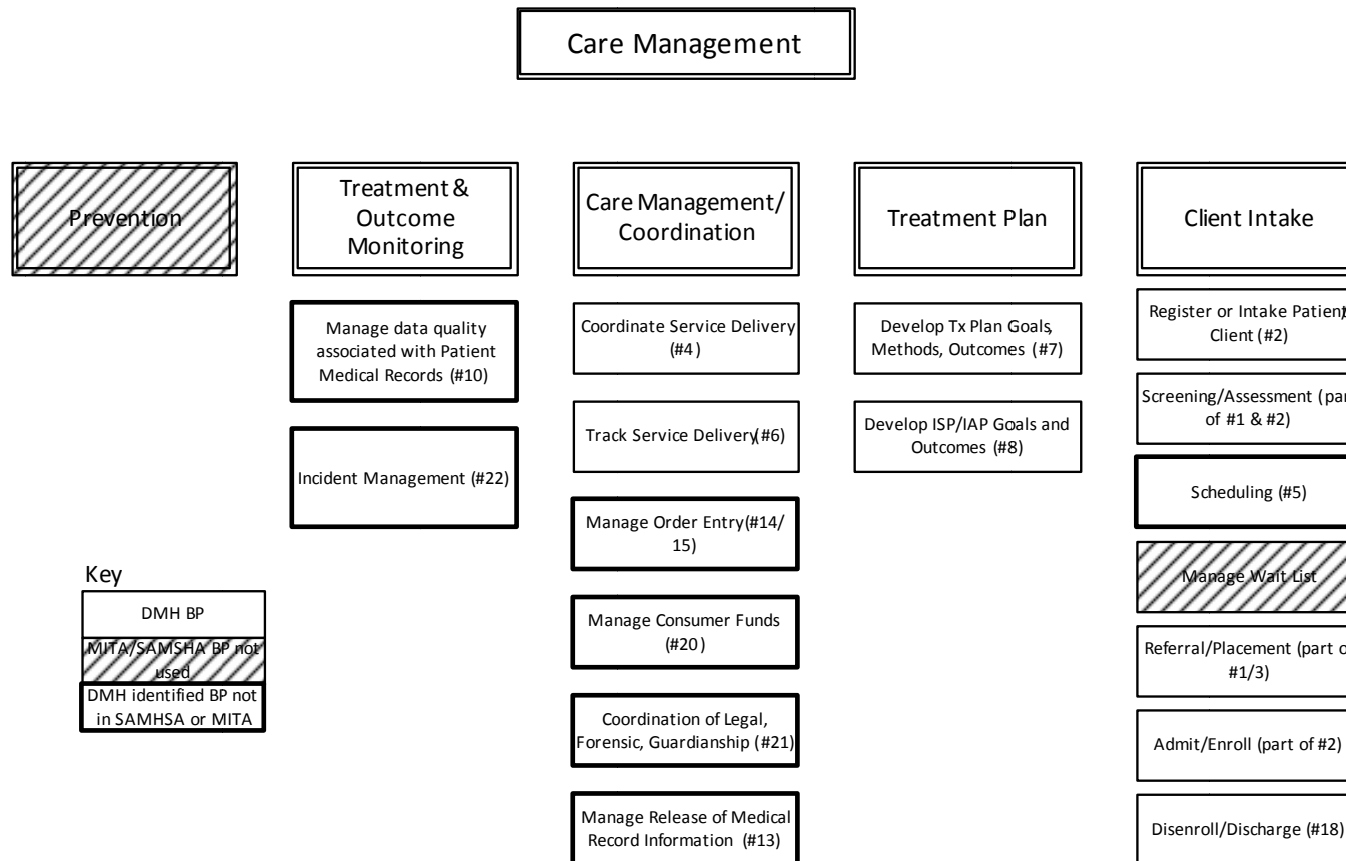
This business area includes a wide range of planning, analysis, and decision-making activities, including benefit plan design, rate setting, healthcare outcome targets, and cost-management decisions. It also contains budget analysis, accounting, quality assessment, performance analysis, outcome analysis, continuity of operations plan, and information management.

This is the heart of the Medicaid enterprise and the control center for all operations.

As the Medicaid enterprise matures, Program Management benefits from immediate access to information, addition of clinical records, use of standards, and interoperability with other programs. The Medicaid program is moving from a focus on daily operations (e.g., number of claims paid) to a strategic focus on how to meet the needs of the population within a prescribed budget.

Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
# 56	Develop and Maintain Program Policy	The Develop and Program Administrative Policy Business Process responds to requests or needs for change in the agency's programs, benefits, or rules, based on federal or state statutes and regulations; governing board or commission directives; QIO findings; federal or state audits; agency decisions; and consumer pressure.	1	Primarily, a manual and paper driven process; labor intensive; would benefit from a system that identifies DMH clients who are Mass Health members, their period of eligibility and type of eligibility, and their Mass Health expenditures.
# 58	Develop Agency Goals and Initiatives	The Develop Agency Goals and Initiatives business process periodically assess current mission statement, goals, and objectives to determine if changes are called for. Changes to goals and objectives could be warranted under a new administration or in response to changes in demographics or public opinion; or in response to natural disasters such as Katrina.	1	Primarily, a manual and paper driven process; labor intensive;

2.7 CARE MANAGEMENT



The Care Management business area includes processes that support individual and population care management and prevention. It contains a broad set of business processes related to client care (e.g., identify and manage special populations, develop and implement the treatment plan, monitor and manage treatment and services, and manage client outcomes), and collects information about these activities.

Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
# 2	Register or Intake Patient/Client	Register or Intake Patient/Client business process receives intake data from the patient/client; checks for status (e.g., new, current, past); Check for Insurance Authorization (ESP only); opens a patient/client file; validates data for required fields, edits required fields, verifies patient/client information with external entities if available, and assigns an ID. Includes Mobile ESP	1	Clients are registered electronically with searches done to check if they already exist in the data base; not all programs have access to MHIS however.
# 4	Coordinate Service Delivery & Tracking Service Delivery	The Coordinate Service Delivery business process uses Federal and State-specific criteria and rules to ensure appropriate and cost-effective medical, medically related social and behavioral health services are identified, planned, obtained and monitored for clients. It includes activities to confirm delivery of services and compliance with the plan, as well as service planning and coordination, brokering of services (finding providers, establishing service limits, etc.), continuity of care, and advocating for the client. Include ESP	1	Data is received electronically but some must be manipulated manually; data is stored in some silos making access to all data difficult.

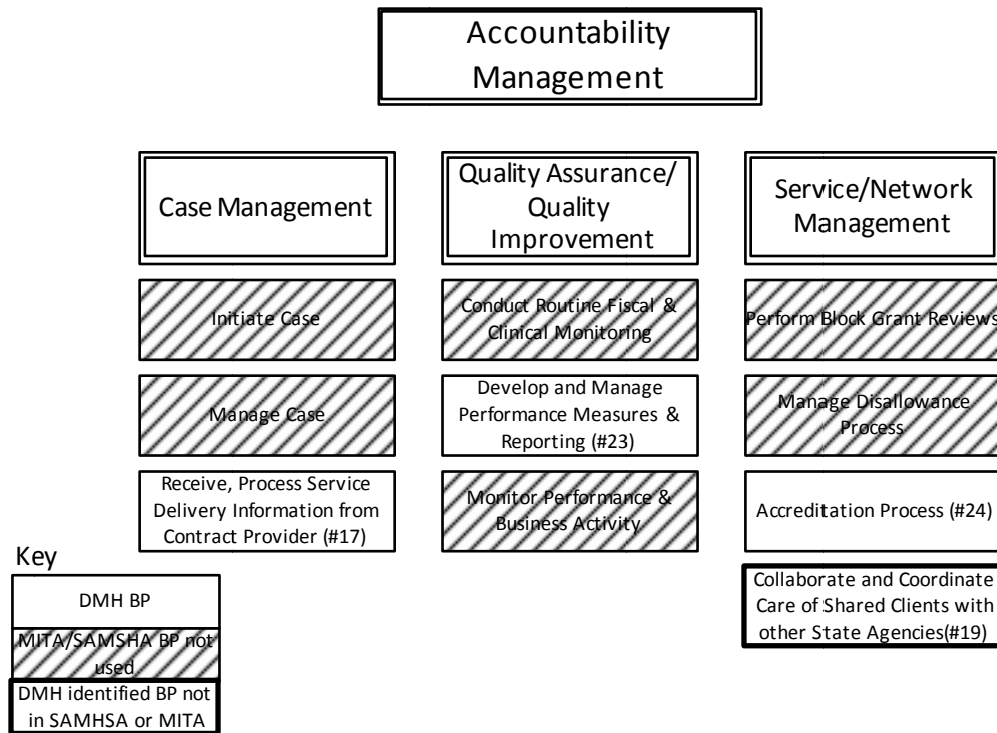
Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
		The Tracking Service Delivery business process tracks transfers, leaves of absences and service delivery.		
# 5	Scheduling	The scheduling business process schedules client and group appointments and procedures. Scheduling and tracking groups, referrals, attendance and utilization management	1	Scheduling is almost completely paper based, staff do not use even Outlook in some programs
# 7	Develop Plan Goals, Methods and Outcomes	The Develop Plan Goals, Methods, Outcomes business process uses Federal and State-specific criteria, rules, best practices and professional judgment to develop patient/client service plans that optimizes successful outcomes. It includes involving a team of professionals to engage in activities to track and assess the patient/client progress throughout the care process, establish and adapt a care plan tailored to meeting patient/client needs. Including Waitlist	1	Some clinical data is captured, managed and maintained electronically but not in a single EHR.
# 8	Develop ISP / IAP, Goals and Outcomes	The Develop ISP / IAP Goals, and Outcomes business process uses Federal and State-specific criteria, rules, best practices, professional	1	Manual paper based process. There are uniform forms available electronically but most are used at providers and not at DMH facilities.

Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
		judgment, and individual participation to develop individualized Service Plans (ISPs) that identify the goals and needs expressed by the individual. ISP development includes the individual and a team of providers who will develop an Individualized Action Plan (IAPs) for each goal, will provide the services needed to attain the identified goal(s) and will assess and report on the individual's progress. Including Waitlist		
# 10	Manage data quality associated with Patient Medical Records	Staff reviews and monitors the quality of the data entered into medical records.	1	Manual, paper process to manage the quality of medical records as the bulk of records is still in paper charts, non-centralized.
# 13	Manage Release of Medical Record Information	The Manage Release of Medical Record Information business process copies/releases/tracks medical record information as needed and consistent with HIPPA requirements. Medical record information is currently maintained in both paper and electronic formats.	1	Manual, paper based process. An EHR would assist in managing this process electronically.
# 14	Manage Order Entry & Manage Pharmacy	The Manage Order Entry business process allows staff to document orders such as treatments,	1	Completely manual, paper based process for all types of orders. Need electronic orders for lab, pharmacy, etc. Very labor intensive process for

Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
	Services	<p>medications, procedures, labs, equipment, consults, referrals and ancillaries [and close the loop].</p> <p>Pharmacy Services interfaces with order entry to provide medication management for physicians and the clinical staff.</p>		<p>doctors and nurses. No drug/drug or drug/allergy alerts automatically created. Medication reconciliation is completely manual process – critical issue for JCAHO.</p>
# 18	Discharge Patient/Client	<p>The Discharge Patient/Client business process is responsible for managing the termination of a patient/client's stay in a facility or participation in a program, for any reason. The process uses data from the Admit/Enroll patient/client process and from patient/client data and records gathered throughout the period of service, validates the discharge data, loads or sends the data into the patient/client and Provider/Contractor databases or interfaces, loads or sends the data to billing systems for payment, and produces notifications for providers/contractors and for reporting purposes. Include ESP</p>	1	<p>Partially electronic process and partly manual. Paper forms must be completed. Systems do not include any auto closing of sub sets of data when a client leaves – each level must be touched and closed.</p>
# 20	Manage Consumer Funds	<p>The Manage Consumer Funds business process establishes and</p>	1	<p>Some electronic processes used but mostly manual – client fills out request, cash given out,</p>

Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
		manages consumer fund accounts.		cash sheets maintained manually. Hospitals should consider separating management of consumer funds from management of canteen funds.
# 21	Coordination of Legal, Forensic, Guardianship	The Coordination of Legal, Forensic, Guardianship business process manages legal, forensic and guardianship involvement across all DMH services.	1	Legal office has a single, "The Base" SQL database that supports their work; pulls demographic information from DMH data warehouse; standardized within legal department only.

2.8 ACCOUNTABILITY MANAGEMENT



The Accountability Management business area incorporates those processes that focus on program monitoring and compliance (e.g., auditing and tracking appropriateness and quality of care, adherence to program and grant requirements, adequate documentation, and fraud and abuse). This business area collects information about individual providers/contractors, clients, and services that are used for developing Federal, State, and program measures related to outcomes, performance, quality, and others. This process will mature with access to clinical data that improve the capability for monitoring and reporting quality and identifying fraud and abuse.

Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
# 17	Receive, Process Service Delivery Information from Contract Provider	The Receive Service Delivery Information from Provider business process collects information from a provider about the quantity and/or type of service(s), component(s) of service delivered by a provider to an individual or a group of individuals. In addition to serving such purposes as: reviewing and managing utilization, monitoring and managing the contracts, and reviewing the provider's performance, information may also be used for such needs as Chapter 257 compliance, rate setting and/or FFP claiming purposes.	1	Data is submitted in a variety of both paper and electronic formats; requires manual, labor intensive review; would benefit from a uniform system of receiving and processing service delivery data.
# 19	Collaborate and Coordinate Care of Shared Clients with other State Agencies	The Collaborate and Coordinate With Other State Agencies On Services To Shared Clients business process coordinates efforts and programs with other agencies whose target population includes individuals also served by this Agency. This collaboration may include sharing of aggregate information about the number of individuals receiving services,	1	Primarily a manual and paper based system of coordinating care.

Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
		types of services received, client characteristics and demographics for purposes such as utilization management, performance monitoring, Chapter 257 compliance rate setting and FFP claiming purposes.		
# 23	Develop, Monitor and Manage Performance Measures and Reporting	The Develop and Manage Performance Measures and Reporting business process establishes mechanisms and requirements for developing, managing, and reporting performance measures and other data for providers/contractors, quality, and outcomes, and to comply with state and federal reporting requirements. This process analyzes patient/client and service histories and trends, costs, expenditures, and trends, assesses external factors affecting the program, assesses agency initiatives and plans, identifies significant measurable activities and outcomes, and creates and/or revises performance measures.	1	Labor intensive; uses multiple paper, Access databases, MHIS and the DMH Data Warehouse to achieve reporting and analysis; would benefit from an integrated system that had all service delivery information, related to contracts and performance measures/outcomes in a single system with analysis/reporting available against the data warehouse for EHR data – partially available now but stronger internal system would provide improvement and greater ability to compare across services.

Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
		Including Client Survey		
# 24	Accreditation Process	The Accreditation business process assures DMH facilities and outpatient units meet accreditation and credentialing necessary for program participation.	1	Largely automated via the JCAHO website but completely separate from any DMH system; would benefit from stronger reporting in any EHR system to support needs of JCAHO surveyors; currently rely on multiple systems – MHIS, CARE and Access databases.

3.0 RECOMMENDATIONS

3.1 BUSINESS CAPABILITY MATRIX RELATED RECOMMENDATIONS

All maturity matrices for the DMH MITA and SSP business processes scored overall at level 1. There were exceptions within steps of a matrix where a level 2 or in one case, a level 3 was achieved. Many processes may have pieces of their business conducted electronically but most also rely on paper based, manual interventions with a large amount of labor intensive work to enter, maintain, capture, and/or analyze the data.

On 16 of the matrices, a level 2 was achieved for Interoperability and on 13 of those 16 matrices, parts of Data Access and Accuracy also scored at level 2. On two matrices, Quality and Accuracy of Process Results (Validation) received a level 2 score. On one matrix, Utility or Value to Stakeholders was scored at a level 2. There was also a single instance of a level 3 for Interoperability (process interoperability) and for Data Access and Accuracy (standardization).

Recommendations

1. Implement a single system to support the business of DMH (contracting, monitoring, eligibility, claims, licensing, etc.)
 - a. Replace the many Access databases with one single system
 - b. Allows for sharing of data as appropriate
 - c. Still supports reporting from data warehouse but with one DMH source merging with multiple outside sources as needed
2. Implement a uniform, national standard for procedures, activities and bills/claims
 - a. Improves data accuracy
 - b. Improves comparability of data
 - c. Improves interoperability of data between providers and Central Office and between Central Office and MassHealth
 - d. Incorporate these standards into provider contracts
 - e. Ensures full data on what DMH is buying – what, to whom, at what cost.
3. Re-implement the old hospital system but in a single instance, or preferably, acquire an EHR for all inpatient facilities where data can be shared across the department as needed to ensure clear communication about a client who may be admitted to any facility.
 - a. EHR should be eligible for Meaningful Use
 - b. EHR contains a unique identifier for inclusion in the DMH system in #1 above.
4. Interoperability with MMIS – ensure the ability to compare, capture, maintain and update data from MassHealth electronically.
 - a. Eligibility via 270/271
 - b. Claims via 5010 (as of January 2012) with the ability to send the appropriate 835 back to the each contract provider.
 - c. Receive claims information back from MassHealth.



Commonwealth of Massachusetts
Executive Office of Health and Human Services
Next Generation System Planning Project

Deliverable 6C (DPH - BoPHF); Business Capability Matrix
(Based on MITA SS-A – Version 2.0)

December 16, 2011

Erin Ferrari, Project Manager
The Commonwealth of Massachusetts
Executive Office of Health and Human Services
One Ashburton Place, 11th Floor
Boston, MA 02108
erin.ferrari@state.ma.us

Charlie Leadbetter, Project Principal/Project Manager
BerryDunn
100 Middle Street, PO Box 1100
Portland, ME 04104-1100
cleadbetter@berrydunn.com

Deliverable 6C (DPH - BoPHF) Business Capability Matrix**TABLE OF CONTENTS**

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Appendices:

Appendix A; Business Process Template (Definitions)

Appendix B; Maturity Matrix (Definition)

Appendix C; Completed Business Process Templates

Appendix D; Completed Maturity Matrices for Business Processes

Executive Summary

The primary systems that support the business of the Department of Developmental Services (DDS), the Department of Mental Health (DMH) and the Department of Public Health - Bureau of Public Health Facilities (DPH - BoPHF) have been developed over time through an innovative approach of describing these solutions as Modules within the Medicaid Management Information System (MMIS) operated by the Executive Office. This approach has allowed the agencies to claim enhanced developmental federal dollars for the creation of these solutions and enhanced operational federal dollars for ongoing operations and maintenance. As these systems near “end-of-life”, the agencies have been talking about a replacement or Next Generation System. In order for any solution to continue to qualify for enhanced federal matching dollars, the current systems must be treated like the MMIS; specifically, they fall within the federal requirement to have a Medicaid Information Technology Architecture (MITA) state-self assessment performed.

The MITA initiative was undertaken in 2002 by the Centers for Medicare and Medicaid Services (CMS) to standardize, yet stimulate, and accelerate business and technological transformation of the Medicaid enterprise in all States. MITA presents a framework for states that describes business capabilities and technical capabilities in the present (the As-Is) and a corresponding vision of potential business and technology capabilities and integration in the future (the To-Be). The Business and Technology Capability Matrices, when complete, include a series of snapshots of how business improvements and enabling technology and integration may move an agency along the path from the current state to the potential To-Be state.

The business capability levels focus on describing the distinct technological and operational progress over time as agencies progress their business operations and technologies towards the future vision. This series of snapshots is called the Maturity Model, and provides agencies with both a target for further business transformation and technical improvements and a measure for how far along they are on the path to CMS’ ultimate vision of an integrated and interoperable business operation supported by enabling technology (adapted from Behavioral Health MITA Version 1.0).

For the Department of Public Health (DPH - BoPHF) the MITA As-Is State Self Assessment (SS-A) began with a goal setting effort for the agency and facilities. This effort progressed to the development of a list of business processes to be reviewed as part of the SS-A. The business processes were selected from the 76 MITA-defined Business Processes and augmented with related processes that are done for DPH - BoPHF, central to the agency’s business, conducted on DPH - BoPHF solutions and similar to MITA business processes but not done specifically for the state Medicaid agency (MassHealth). While many processes are performed for DPH – BoPHF business using the agency’s own technology solutions, the goal of the Commonwealth is to achieve greater interoperability between DPH - BoPHF systems and MassHealth’s NewMMIS system in the future. In Section 2.0 of this report, a table shows the various processes and describes the extent to which a process is MITA Specific or MITA related and thus requires collaboration or linkages between DPH - BoPHF and MassHealth. In

addition, business processes not related to MITA are categorized as Agency Specific Processes (ASP) and are indicated as such on the table.

The MITA Business Process Model provides the foundation for developing the vision, grounded in the business processes identified today (adapted from Behavioral Health MITA Version 1.0). Ultimately, these MITA artifacts become the baseline against which requirements are gathered for the Next Generation Solution; the As-Is capabilities are the minimum requirements to support the business and the To-Be capabilities are the minimum level of new functions and features that the proposed solutions must also support for agency growth. Finally, these MITA artifacts will allow the Next Generation Solution efforts to qualify for the enhanced federal funding.

On the pages that follow, the project approach and methodology are described, the various business processes and their relationship to the MITA processes are depicted and process specific maturity levels are presented and explained.

Purpose

1.1 Background

The Commonwealth of Massachusetts Executive Office of Health and Human Services (EOHHS) engaged BerryDunn to provide a Medicaid Information Technology Architecture (MITA) State Self-Assessment (SS-A) for the Department of Developmental Services (DDS), the Department of Mental Health (DMH), and the Department of Public Health (DPH - BoPHF). These three EOHHS Agencies each operate their own systems, based on the primary system of record acute hospital software that has been enhanced to meet the individual needs of the Agencies, that is then linked to MassHealth's New Medicaid Management Information System (NewMMIS). This collective MITA C-2 SS-A is referred to as Component Two of the EOHHS MITA Initiative. Component One was the "As Is" analysis of the Medicaid business process and technical capability assessments, completed in October 2008 and Component Three will be the "To Be" full scale MITA analysis of MassHealth based on the May 26, 2009 implementation of the NewMMIS.

In preparation for this project, DDS, DMH and DPH - BoPHF evaluated their own business models and mapped these against the eight high-level MITA-defined Business Areas and the 76 MITA-defined Business Processes. In Massachusetts, many of the MITA-defined Business Processes are performed for the Agencies by MassHealth, some of the MITA-defined Business Processes are performed by the Agency, and there are a number of agency-specific processes (ASPs) within these eight MITA-defined Business Areas that were identified. For example, the initial MITA-defined Business Process is Determine Eligibility: for all Agencies, determining eligibility for Medicaid is performed by MassHealth but each Agency performs another eligibility determination for their own services. Therefore, the Determine Eligibility process is MITA related for each Agency but not Medicaid-specific.

Teams of Subject Matter Experts from the state Agencies and from the contractor were assembled and three independent MITA-SS-A efforts were undertaken in parallel during 2011.

Agency Background

Within the overall Department of Public Health, the Bureau of Public Health Facilities is organized as a system of four multi-specialty hospitals and the State Office of Pharmacy Services (SOPS). Although SOPS was not a formal part of the MITA project, the agencies continue to maintain contact given the important role SOPS will fill in enabling processes such as CPOE, eMAR, bMAR, etc. The hospitals provide acute and chronic hospital medical care to individuals for whom community services are not available or access to health care is restricted. Through a combined focus on delivery of health care services to special populations, education and research, the public health hospitals serve as a catalyst for change in the health care system by developing and modeling new treatment programs and responding to emerging health care needs of the citizens of the Commonwealth. These services are delivered through:

Lemuel Shattuck Hospital (LSH) is a 255 bed facility providing acute, sub-acute and ambulatory care to patients referred primarily by public agencies and private health care providers. Additionally, the Shattuck operates 26 subspecialty outpatient clinics, all but the most tertiary surgical services, and a full array of radiological imaging and clinical laboratory services.

Massachusetts Hospital School (MHS) is a 110 bed facility providing medical, habilitative, rehabilitative, recreational, educational and vocational services to children and young adults with multiple disabilities, assisting them to achieve their maximum level of independence in all aspects of life. MHS is in the process of expanding the current census from 75 to 105 beds.

Tewksbury Hospital (TKH) is a 540 bed facility providing comprehensive treatment, care, and comfort to adults with chronic medical and mental illnesses.

Western Massachusetts Hospital (WMH) is a 100 bed long-term medical and specialty care hospital providing both acute and chronic hospital care to patients with a variety of chronic diseases.

State Office of Pharmacy Services (SOPS) is operated out of the DPH –BoPHF and provides pharmacy services to 22 Commonwealth agencies and Department of Correction institutionalized clients. It services around 35,000 beds. SOPS was not a formal part of the MITA project, however the agencies continue to maintain contact given SOPS important role in their operations.

1.2 MITA Overview

The DPH - BoPHF team used a combination of the MITA 2.0 Process Model and the SAMHSA Behavioral Health MITA Business Process Model (Version 1.0) to organize the various business processes that were documented. For the DPH – BoPHF SS-A, all of the Business Processes were aligned with the seven Behavioral Health MITA Business Areas. An additional business area was added, “Non-Clinical Support Services Management,” to accommodate environment of care and life safety management functions found in a hospital setting. As a result the DPH - BoPHF model had eight business areas.

- a. The 76 MITA-defined Business Processes and the SAMHSA Behavioral Health MITA Business Process Model (Version 1.0) served as the baseline from which the final list of Business Processes was developed. Working in conjunction with DPH – BoPHF subject matter experts (SMEs), the starting set of processes were vetted for applicability and relevance to DPH - BoPHF’s operations in collaboration with the DPH – BoPHF Information Management Governance Committee (IM Governance Committee). The IM Governance Committee is an existing body comprised of CEO appointed representatives from all 4 hospitals at DPH - BoPHF and served as the decision making body for this project. The result of this vetting was a consolidated and condensed list of processes which were then organized according to categories of regulatory standards (the Joint Commission). The final processes were each compared, individually, to the SAMHSA Behavioral Health MITA Business Process Model and each relevant process was linked to one of the 7 Business Areas model. One additional business area was added, “Non-Clinical Support Services Management” to reflect environment of care and life safety services being provided at the hospitals. As a result, there are 8 business areas.

It is important to note that even though DPH - BoPHF does not perform every key Business Process for Medicaid (as defined in the MITA Business Processes), it does perform many of the same business processes internally. As a result of the development of the Process list, only a few Agency Specific Processes (ASP) that were identified as critical to the DPH - BoPHF enterprise had not already been identified by the SAMHSA MITA Model. In Section 2.0, each business process is listed and identified as MITA, MITA Related, or Agency Specific Process in the appropriate column.

A MITA Maturity Model and Maturity Matrix were developed for the project based on a review of:

1. Relevant MITA Framework 2.0 chapters and appendices.
2. Relevant SAMSHA Behavioral Health MITA Framework chapters and appendices.

Using information gleaned from the source documents a Draft MITA Maturity Model methodology and template were created and initially reviewed by Department of Mental Health (DMH) leads. After a review and discussion of maturity measures - specifically for

Levels 1, 2 and 3 - an updated Maturity Model was created and circulated to Department of Developmental Services (DDS) and Department of Public Health (DPH - BoPHF) state team leads for review and comment. Comments from each agency were received and updates were made to the model and one common Maturity Model and Maturity Matrix were finalized for use across all three agencies for three different business models.

The Maturity Model assesses each Business Process' maturity on a scale of 1 to 3 across these following Qualities and Measures:

- Interoperability
 - Technical, Semantic and Process Interoperability
- Timeliness of Process
- Data Access and Accuracy
 - Standardization of Data and Format
 - Storage of Data
 - Access to Data
 - Reporting
- Effort to Perform/Level of Effort
- Cost-Effectiveness
- Quality and Accuracy of Process Results
 - Accuracy of Results and Validation Process
- Utility or Value to Stakeholders

Documents Used to Inform the SS-A

- Template(s) - based on the MITA Business Process Template - were used to document each Business Process across each of the Business Areas.
 - A separate Template was completed for each process. There were a total of 76 business process templates completed: 40 templates for the 10 Care Management processes, 33 templates for the 33 non-Care Management processes and 3 templates for the 3 MITA specific processes.
 - The 10 Care Management business processes completed one work session and completed one template per process for each of the four DPH – BoPHF hospitals. For these 10 processes a total of 40 work sessions were held. Individual work sessions were required for each facility due to the unique delivery system environment at each location.
 - The 33 non-Care Management processes and 3 MITA specific work sessions were held at LSH and then the completed template was circulated to the other 3 hospitals for their input on any business process variations. These processes were selected for this review process because they are completed similarly at all facilities and Lemuel Shattuck was determined to be representative of all 4 hospitals with the exception of small variations.
- A MITA Maturity Matrix was developed specifically for this project using MITA Maturity levels as defined in MITA 2.0 in conjunction with the Behavioral Health MITA guidance and some language adapted to reflect actual business processes

that are done in the Department of Public Health – Bureau of Public Health Facilities.

- A separate Maturity Matrix was completed for each Process. Notes concerning the maturity of the technology deployed for each business process were recorded either in the Maturity Matrix document or in Business Process Template or both.

Copies of these templates are included as Appendix A and Appendix B of this report.

1.3 Methodology

The Business Process review and Maturity Capability determination was carried out by a committed team of DPH - BoPHF staff along with vendor staff. The specific steps taken to complete effort are delineated below:

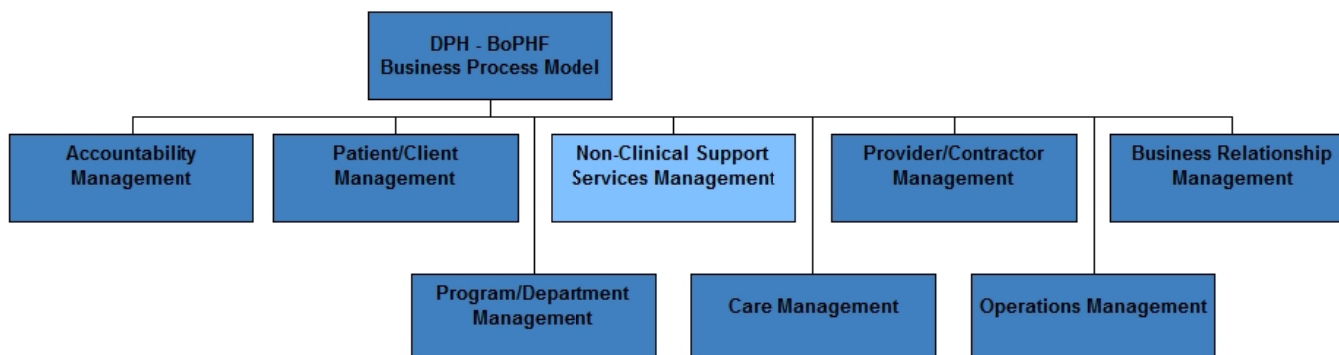
- a. DPH - BoPHF developed an initial list of departments at the 4 DPH - BoPHF Hospitals and identified relevant MITA processes in the RFR.
- b. The vendor used the SAMHSA Behavioral Health MITA Business Process Model to create an initial list of business processes as a starting point in developing the ASPs for DPH - BoPHF. An additional business area was added, "Non-Clinical Support Services Management," to reflect environment of care and life safety services being provided at the hospitals. As a result, there are eight business areas.
- c. DPH - BoPHF assigned the IM Governance Committee the responsibility of driving the planning, business process review and maturity level determination efforts.
- d. A team of subject matter experts (SMEs) from DPH - BoPHF worked with the IM Governance Committee and the vendor to refine the ASP list of processes developed by the vendor during a series of meetings. The IM Governance Committee and vendor worked together to review, modify and finalize list of ASP and MITA processes DPH - BoPHF performs.
- e. Vendor and Department of Mental Health (DMH) staff contributed to the development of a maturity matrix to be used across all three agencies and this matrix was adopted by the IM Governance Committee for DPH - BoPHF.
- f. After the final list of business processes was developed and approved, DPH - BoPHF identified SMEs from the hospitals to participate in each Business Process work session.
- g. Work sessions were scheduled across a period of three months but the majority of the meetings occurred over a three week period.
- h. Due to the complexity of DPH - BoPHF, the uniqueness of the 4 DPH – BoPHF hospitals and the number of business process work sessions required, the vendor and IM Governance Committee worked to develop an approach to complete these work sessions. The IM Governance Committee, in conjunction with the vendor, made the strategic decision to complete the same 10 SS-A work sessions at each of the 4 DPH - BoPHF hospitals. These 10 Care Management processes were selected for additional work sessions due to their uniqueness at each of the 4 facilities. In addition, the regulatory standards from the Joint Commission were utilized as a resource in the organization/review of the processes.
- i. The remaining 36 business processes were identified by the IM Governance Committee as less unique (due to regulations that drove the process and prevent variation) and interviews were limited to Lemuel Shattuck Hospital SMEs. LSH was the most complicated facility and selected to be representative of how the process was completed for all DPH – BoPHF facilities. The remaining 3 facilities were provided a chance to incorporate their variations during the review process. The chosen approach addressed the complexity of DPH - BoPHF, the level of detail needed, uniqueness of the facilities and the time restrictions of DPH -

- BoPHF SMEs while still adequately documenting all DPH - BoPHF business processes.
- j. DPH - BoPHF and the vendor team held 76 work sessions with 52 unique DPH - BoPHF SME participants. Many of these participants attended multiple sessions and each individual contributed to the completion of the Business Process Templates.
 - k. At each work session the Business Process Template content and operational details were captured.
 - l. The maturity matrix was completed at the end of the work session by the DPH - BoPHF MITA Project Manager and the vendor's SME. The scores were based upon information received during the work sessions. Any differences in scoring were discussed by the DPH - BoPHF Project Manager and SME until consensus was reached. The matrix was then finalized and approved by the DPH - BoPHF MITA Project Manager. For the 10 processes with meetings held at each facility, there were 4 separate matrices completed and 1 consolidated matrix. For the remaining processes that only held work sessions at LSH, the matrix represents the maturity level only at LSH.
 - m. Completed Business Process Templates underwent a thorough review process. For the Care Management templates completed at each facility, copies of the draft were sent to all SME meeting participants for final edits. The remaining 36 templates with work sessions held only at LSH were drafted and sent to the remaining 3 hospitals not present during the work sessions. The other 3 facilities provided feedback on if and/or how their hospital's business process varied from the process at LSH. Any variations captured were entered into the "Business Process Variations" section of the finalized template.
 - n. After all edits and variations (if applicable) were incorporated, the completed business process template was sent for approval by the IM Governance Committee. The templates from the 10 Care Management processes that held the 4 separate meetings were each reviewed and approved by 1 IM Governance Committee member from the corresponding facility. The remaining 36 business processes were reviewed and approved by 4 IM Governance Committee members (1 from each of the 4 facilities).
 - o. Final and approved templates and matrices were uploaded to a common site (Knowledge Link) by the vendor and are accessible to DPH - BoPHF and vendor staff.
 - p. Completed Maturity Matrices were analyzed and those results are included in this report.

1.4 Adaptation of Model Charts for DPH - BoPHF

Throughout the Business Capability Findings Section, charts are used to illustrate the business processes and how they fit into the DPH - BoPHF workflow. Charts were adapted for each major business process area from the SAMHSA Behavioral Health MITA Business Process/Data Model Document, Version 1.0, Medicaid Information Technology Architecture, Contract Number GS-35F-0201R, Task Order No. CMS-HHSM-500-2006-00130G, September 2, 2008¹

The chart below shows the overall organization of business areas for DPH - BoPHF.



At the beginning of each Business Area section in 2.0 a chart displays the business processes used at DPH - BoPHF. The charts show the complete set of business processes as identified in either MITA 2.0 or the above noted SAMHSA MITA related document plus a few additional business processes in the “Non-Clinical Support Services Management” business area (environment of care and life safety initiatives) that DPH - BoPHF identified as important to their mission.

¹ Behavioral Health MITA Business Process/Data Model Document Version 1.0 Medicaid Information Technology Architecture Contract Number GS-35F-0201R, Task Order No. CMS-HHSM-500-2006-00130G September 2, 2008

A MITA Maturity Matrix was developed specifically for this project using MITA Maturity levels as defined in MITA 2.0 in conjunction with the Behavioral Health MITA guidance and some language adapted to reflect actual business processes that are done in the Department of Mental Health. The Maturity Matrix was shared with the DPH - BoPHF and accepted for use in this project.

A business capability describes a business process at a specific level of maturity measured on a scale of one to five. Business capability statements include definitions of qualities that represent measurable differences between each level.

MITA Business Capability Findings

DPH - BoPHF carefully reviewed each of the 76 MITA-defined business processes in terms of whether each was an activity that DPH – BoPHF performs for or with MassHealth, the State Medicaid agency, whether it was related to a MITA-defined process or whether it was a process performed solely for DPH - BoPHF. Some processes in the Operations Management business area are done for Medicaid and the remaining processes are defined using similar MITA language, are critical to DPH - BoPHF's operations but not performed strictly for or with Medicaid.

Crosswalk of DPH – BoPHF Business Processes

The table below contains the various processes documented for DPH - BoPHF:

- Column **A** includes the Business Process title
- Column **B** indicates that DPH - BoPHF performs this process for the Medicaid program
- Column **C** indicates that DPH - BoPHF performs a MITA Related Process but not specifically for the Medicaid program
- Column **D** indicates a DPH - BoPHF Agency Specific processes

Business Process Title	MITA Process	MITA Related Process	Agency Specific Process
Care Management			
Develop and Manage Performance Measures and Reporting		X	
Monitor Performance and Business Activity		X	
Conduct Patient Pre-admission Process/Manage Wait List		X	
Register/Admit Patient/Client		X	
Conduct Initial Screening and Assessment		X	
Develop Treatment Plan Goals, Methods, and Outcomes (including Discharge Plan)		X	

Business Process Title	MITA Process	MITA Related Process	Agency Specific Process
Provision and Coordination of Care Delivery		X	
Discharge Patient/Client		X	
Manage and Monitor Patient/Client Outcomes		X	
Conduct Prevention Activities		X	
Accountability Management			
Initiate Case or Event		X	
Manage Case or Event		X	
Conduct Routine Fiscal and Clinical Monitoring		X	
Manage Disallowances and Eligibility for Reimbursement		X	
Maintain Continuous Readiness for Accreditation		X	
Manage Incident Reporting		X	
Business Relationship Management			
Create Business Relationship		X	
Manage Business Relationship		X	
Engage in Joint Planning		X	
Create Communications Protocols			X

Business Process Title	MITA Process	MITA Related Process	Agency Specific Process
Non-Clinical Support Services Management			
Create Environment of Care and Physical Plant Plan		X	
Manage and Monitor Environment of Care and Physical Plant Plan		X	
Maintain Physical Plant and Environment of Care		X	
Operations Management			
Determine Eligibility	X		
Enroll Member	X		
Manage Position Control			X
Manage Recruitment			X
Manage Accounting		X	
Manage Time-keeping and Payroll			X
Manage Revenue Cycle		X	
Manage Reimbursement & Budget		X	
Formulate Budget		X	
Manage Collection and Storage of Health Information		X	

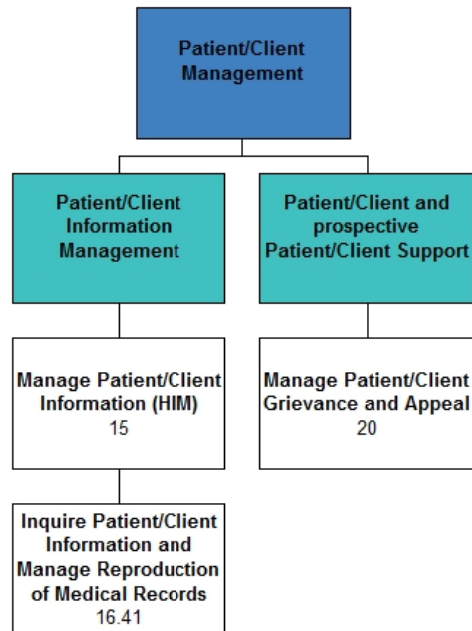
Business Process Title	MITA Process	MITA Related Process	Agency Specific Process
Manage Staff Scheduling			X
Authorize Referral	X		
Patient/Client Management			
Manage Patient/Client Information (HIM)		X	
Inquire Patient/Client Information and Manage Reproduction of Medical Records			X
Manage Patient/Client Grievance and Appeal		X	
Program Management			
Respond to Consent Decrees			X
Develop Goals and Initiatives		X	
Provider/Contractor Management			
Manage Provider/Contractor Procurement		X	
Award Provider/Contractor Contract		X	
Manage Provider/Contractor Contracts		X	
Close out Provider/Contractor Contracts		X	
Register Providers/Contractors		X	

Business Process Title	MITA Process	MITA Related Process	Agency Specific Process
Manage Provider/Contractor Grievance and Appeal		X	

In the following sections, 2.1 through 2.8, each section begins with the charts mentioned in 1.4.

Each business area chart displays the business processes addressed during this Self Assessment.

2.1 Patient/Client Management

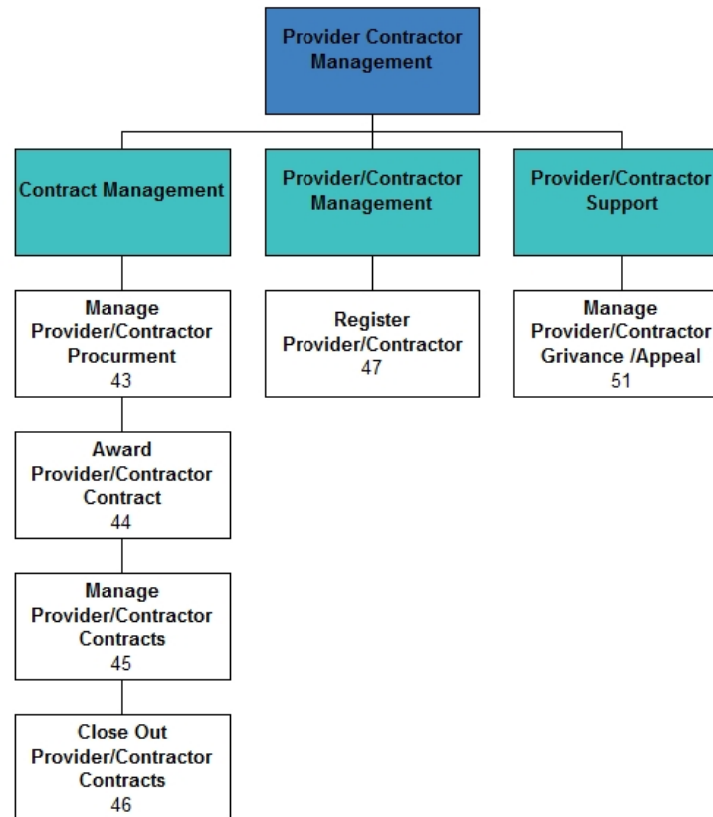


The Patient/Client Management business area is a collection of business processes involved in managing patient/client data and communications, and focuses on outreach to current and potential patients/clients, capturing and maintaining patient/client demographic details, and supporting patient/clients' need for service information. The goal for this business area is to manage patient/client data and communications to improve program participation and healthcare outcomes; future transformation is towards more patient/client self-directed decision making.

Patient/Client Management Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
15	Manage Patient/Client Information (HIM)	The Manage Patient/Client Information business process is responsible for managing all operational aspects of patient/client data, which is the source of comprehensive information about patients/clients, and their interactions with the organization. The patient/client database includes demographic, financial, socio-economic, treatment, service, health status, and outcomes information. Business processes that generate patient/client information send requests to the patient/client database to add, delete, or change this information. The patient/client database provides access to patient/client records to internal and external users.	1	All patient registration information is collected on paper. Updates to this information are also collected on a paper form and manually entered. Verification of insurance information is a hand written process. Develop electronic standard formats for data storing and access where appropriate.
16.41	Inquire Patient/Client Information and Manage Reproduction of Medical Records	The Inquire Patient/Client Information and Manage Reproduction of Medical Records business process receives requests for patient/client information from authorized providers, programs or business associates; performs the inquiry; and prepares the response data set. The patient/client database includes demographic, financial, socio-economic, treatment, service, health status, and outcomes information. The managing reproduction of medical records includes scanning, copying, and/or reproducing medical records both electronic and non-electronic to fill requests for health information.	1	This business process involves manual forms. There is no system with interoperability capabilities (e.g., no system has HITSP (Healthcare Information Technology Standards Panel) that can exchange structured documents). There is no system available with interoperable capabilities. Convert paper forms to electronic where appropriate.
20	Manage Patient/Client Grievance and Appeal	The Manage Patient/Client Grievance and Appeal business process receives information about the grievance or complaint from the patient/client or the patient/client's agent or representative: records the problem, tracks the	1	A paper complaint form is used in this process and entered into an Access database for tracking and management.

Patient/Client Management Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
		problem investigation, appeal and resolution process, and documents communications, dates and outcome; screens for required fields, edits required fields, verifies patient/client information with external entities if available, assigns an ID, tracks the process and timeline, and records the final outcome.		Utilize HTML or PDF forms to capture information and automatically upload to Access database.

2.2 Provider/Contractor Management



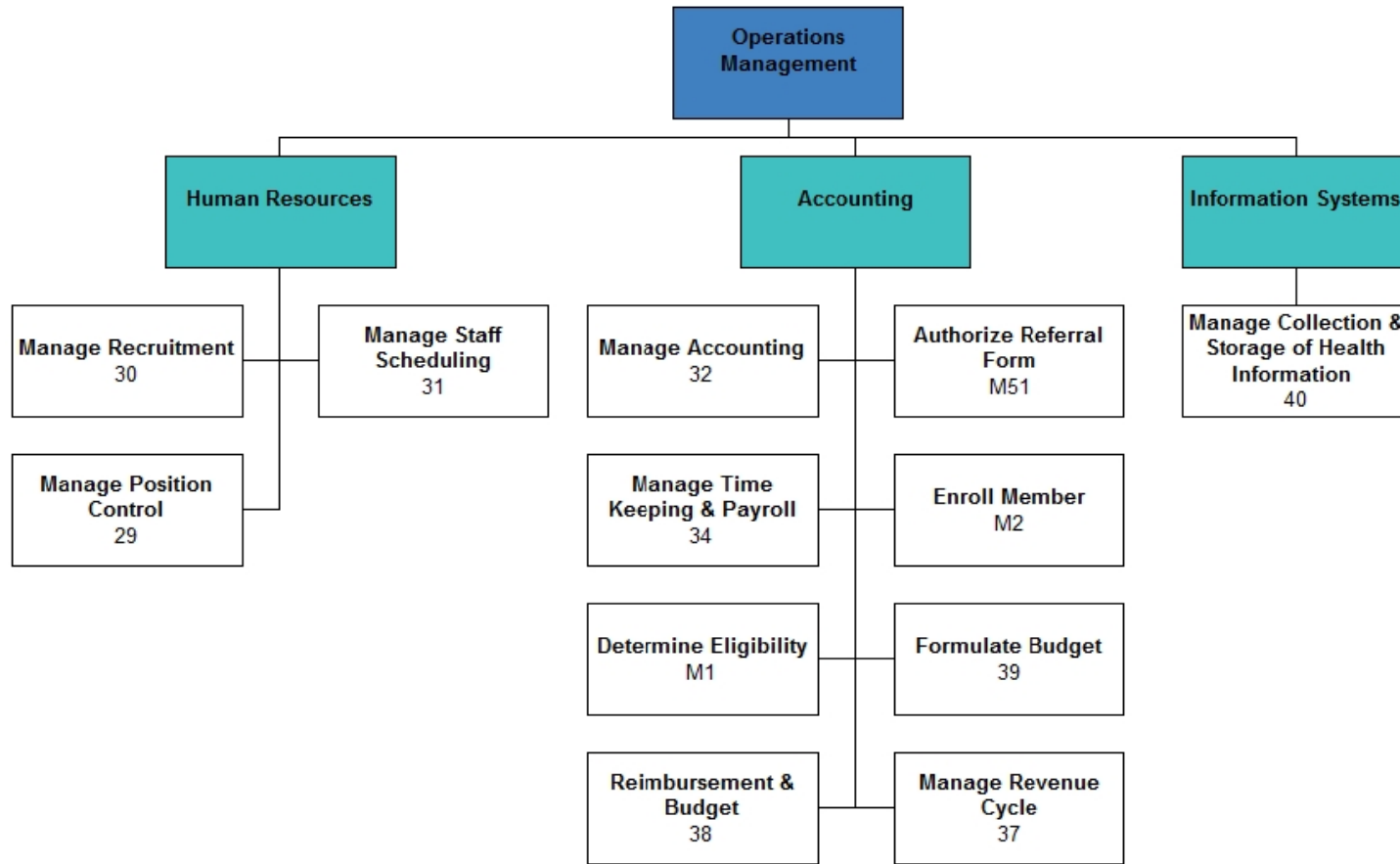
Provider/Contractor Management business area is a collection of business processes that focus on recruiting and managing potential providers/contractors, maintaining information on and communications with providers/contractors, and provider/contractor compliance monitoring.

Provider/Contractor Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
43	Manage Provider/Contractor Procurement	The Manage Provider/Contractor Procurement business process develops and coordinates RFPs, RFRs, RFQs, RFIs, etc. and the provider/contractor selection process.	1	Manual process involving paper contract management. No information systems directly drive this process. Create a shared access electronic standard data base for all facilities/departments to utilize for day to day operations and strategic planning.
44	Award Provider/Contractor Contract	The Award Provider/Contractor Contract business process receives proposals, verifies proposal content against RFP requirements, applies evaluation criteria, designates contractor/vendor, posts award information, entertains protests, resolves protests, negotiates contract, notifies parties.	1	Manual process involving paper contract management. Compass and Department of Public Health Procurement Tracking System (PTS) used to facilitate management and tracking. Utilize an electronic data base that incorporates all aspects of provider/contractor relationships for ease of access and management by all facilities/departments.
45	Manage Provider/Contractor Contracts	The Manage Provider/Contractor Contracts business process maintains the agreement between the organization and the other party. This includes routine changes to required information such as authorized signers, addresses, coverage, and data exchange standards.	1	Process relies on paper contracts for information detail. Invoices are tracked manually as well. Excel is used to maintain record of PO numbers and calendar of expiring contracts. Integrate changes made in the

Provider/Contractor Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
				electronic version referenced in #43 & 44.
46	Close out Provider/Contractor Contracts	The Close-out Provider/Contractor Contract business process begins with an order to terminate a contract. The close-out process ensures that the obligations of the current contract are fulfilled and the turn-over to the new provider/contractor is completed according to contractual obligations. This process is also used if the contract must be terminated for reasons other than reaching contract expiration.	1	Process relies on paper contracts for information detail. Invoices are tracked manually as well. Excel is used to maintain record of PO numbers and calendar of expiring contracts. Expand the electronic version of shared data included #46, 47, & 51.
47	Register Providers/Contractors	<p>The Register Provider/Contractor business process is responsible for managing provider/contractor certification to offer programs and services, including:</p> <ul style="list-style-type: none"> • Receipt of certification application data; • Processing of applications, including status tracking and validating application meets state submission rules. • Validation that the registration meets state/federal requirements by performing primary source verification of credentials and sanction status. 	1	Manual steps used to maintain the provider/contractor listing. Labor intensive system used. Access database used to maintain. A shared electronic data base will provide great opportunity to eliminate manual steps. All steps from #44-47 may be integrated into a model giving current information for day to day management.
51	Manage Provider/Contractor Grievance and Appeal	The Manage Provider/Contractor Grievance and Appeal business process handles prospective and current provider/contractor appeals of adverse decisions or communications of a grievance. A grievance or appeal is received, logged and tracked; triaged to appropriate reviewers; researched; additional information may be requested; a hearing is scheduled and conducted in accordance with legal	1	Forms are populated by hand. This communication is done utilizing the provider/contractor required document for submission of appeals/grievances request. The steps of the process are maintained on a log documented

Provider/Contractor Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
		requirements; and a ruling issued. Results of the hearing and relevant documents are stored in the provider/contractor information file.		manually for the required follow-up and the determination of outcome.

2.3 Operations Management



The Operations Management business area includes operations that support the funding and payment of services and service providers. It supports funds management and the receipt and distribution of funds and payments, and all information associated with agency funding to and from all sources. Most States currently have automated operations that support at least some of these

activities. Common activities include allocating and monitoring grants and funding distribution, and managing and facilitating payment processes both internally and with State Medicaid and other State payer programs.

Operations Management Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
M1	Determine Eligibility	The Determine Eligibility business process receives eligibility application data set from the Receive Inbound Transaction process; checks for status (e.g., new, resubmission, duplicate), establishes type of eligible (e.g., children and parents, disabled, elderly, or other); screens for required fields, edits required fields, verifies applicant information with external entities, assigns an ID, establishes eligibility categories and hierarchy, associates with benefit packages, and produces notifications.	1	Medical record & the primary system of record used to verify existence of patient in system. Paper based MassHealth application form used and New Medicaid Management Information System (NewMMIS) / Provider Online Service Center (POSC) accessed during this process. Utilize interfaces to eliminate on-line manual look up.
M2	Enroll Member	The Enroll Member business process receives eligibility data from the Determine Eligibility process, determines additional qualifications for enrollment in programs for which the member may be eligible (e.g., managed care, HIPPA, waiver), loads the enrollment outcome data into the Member and Contractor Registries, and produces notifications to the member and the contractor. Either the Agency or enrollment brokers may perform some or all of the steps in this process.	1	Medical record & the primary system of record used to verify existence of patient in system. Paper based MassHealth application form used and New Medicaid Management Information System (NewMMIS) / Provider Online Service Center (POSC) accessed during this process. Excel workbook also used to document eligibility and

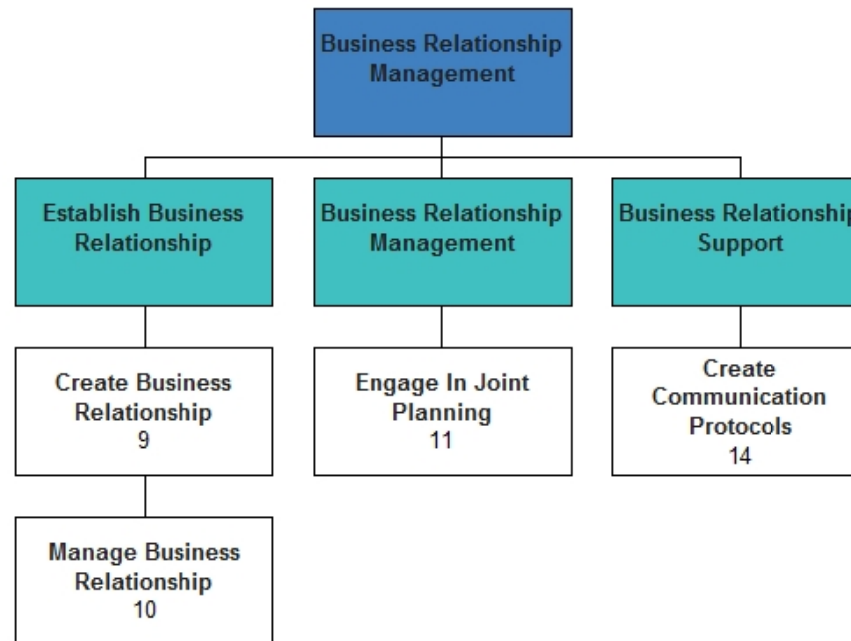
Operations Management Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
				<p>communicate this information between departments.</p> <p>Produce online reports in the primary system of record that can be accessed by all departments to view current eligible patients in order to eliminate Excel workbook tracking.</p>
29	Manage Position Control	The Manage Position Control business process ensures that the provider has positions and money to fill a position. It receives information from the Human Resource system and the Budget system to determine the availability of the position, at the desired job level, in the right department with the proper funding.	1	<p>Limited use of the primary system of record. Process relies on internal manual systems and external data sources.</p> <p>Move away from paper based scheduling and explore client/server or web-based applications.</p>
30	Manage Recruitment	The Manage Recruitment business process entails the operational process of establishing positions, determining the union associated with the position, the “pay grade” of the position, the job description, duties and responsibilities, posting and advertising the position and finally the interviewing and hiring process, with collaboration at the department level. The process applies to union and non-union positions and must be followed by the employer and the employee.	1	<p>Manual process utilizing variety of information systems including HR/CMS (PeopleSoft), JobTrax (Access Database) & Excel.</p> <p>Where appropriate, integrate application data sharing to minimize manual steps.</p>

Operations Management Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
31	Manage Staff Scheduling	The Manage Staff Scheduling business process manages a scheduling method required for all positions for the operational delivery of services. The process will apply to union and non-union positions and have the flexibility to meet demand changes based upon workload, hours of operation, union agreements, emergency situations and or regulatory requirements.	1	All manual. No primary system of record. Automate with staff scheduling application.
32	Manage Accounting	The Manage Accounting business process includes the daily accounting and management of expenditures, liabilities, assets, receivables and revenues of the organization. It encompasses journal entries, system interfaces, accrual management and other accounting processes in order to maintain the various reporting statements and ledgers to have accurate and timely financial reporting to the State and other outside agencies.	1	Three part NCR form. Manual approval process for invoices and entered into accounting system. Variance from budget is evaluated by data warehouse. Mass. Management Accounting Report System is entered daily (purchase order).
34	Manage Time-keeping and Payroll	The Manage Time-keeping and Payroll business process handles the submission of employee hours to the state's payroll system. Employees fill out daily timesheets; the data is transcribed onto time logs by supervisors manually; supervisors sign and send to managers for approval; managers send to Payroll office where they are entered into the state's payroll system.	1	Use paper based time-sheets and time logs. Information is manually entered into human resources compensation management system (HRCMS). Automate this process using electronic forms and database or explore automated payroll application.
37	Manage Revenue Cycle	The Manage Revenue Cycle business process is one of the largest processes. It receives information for all ancillary clinical systems, Health Information Management, Case	1	Coding Policy and Procedure. Manual systems used throughout revenue cycle due to multiple

Operations Management Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
		Management, Accounting and Accounts Payable. The process utilizes the data collected during the registration and admissions process, verifies the charges for services received and the appropriate diagnostic and procedural coding, handles the billing and collecting of revenue from third parties, and determines outstanding balances for collection.		steps take for billing/collection. The primary system of record does the 835 reports.
38	Manage Reimbursement & Budget	The Manage Reimbursement & Budget business process drives the compilation and filing of federal and state cost reports, the calculation and monitoring of net revenue estimates, the development and monthly monitoring of revenue and expense budgets for all services provided at the department, program and institutional levels. This process is tied to the state budget calendar and federal and state reporting requirements.	1	HIPAA 83, 835 Transactions exchanged electronically. This process is performed with UMass and public consulting group. Data is pulled and provided to consultants to formulate reports.
39	Formulate Budget	The Formulate Budget business process examines the current budget, revenue stream and trends, and expenditures, assesses external factors affecting the program, assesses agency initiatives and plans, models different budget scenarios, and periodically produces a new budget.	1	Revenue Budget is done as well as Operational budget. This process is manual and involves files and systems that are not integrated (E.g. HRCMS, The primary system of record, MMARS, Excel Spreadsheets).
40	Manage Collection and Storage of Health Information	The Manage Health Information business process collects and protects all the Personal Health Information (PHI) as defined in HIPAA. The process includes the collection of all documentation of services received, physician and other provider orders written, tests received with results, nursing	1	This business process involves manual forms. There is no system with interoperability capabilities (e.g., no system has HITSP that can exchange

Operations Management Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
		and other provider notes and coding these services with the proper ICD-9 or CPT-4 coding to allow for reimbursement by the various payors of services. All information gathered and stored is highly secured and regulated as per HIPAA.		structured documents) an Interconnected system that shared data does not exist; business information manually loads into other systems to perform various business functions.
M51	Authorize Referral	The Authorize Referral business process is used when referrals between providers must be approved for payment. Examples are referrals by physicians to other providers for laboratory procedures, surgery, drugs, or durable medical equipment. Referral authorization usually occurs in certain provider network and managed care settings. Authorize referrals closely follows the details of Authorize Service and may not require a separate business process definition.	1	Use the primary system of record to gather information required for referral along with Provider Online Service Center (POSC) (referral system) and external scheduling system. Utilize interfaces to eliminate on-line manual look up.

2.4 Business Relationships Management

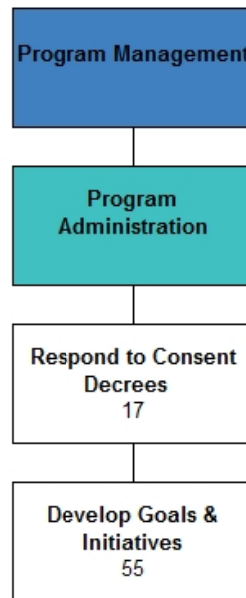


The Business Relationship Management business area is currently represented in many States as a component of Program Management. It is shown here as a separate business area because collaboration between in-State agencies and inter-State and Federal agencies is increasing in importance. This business area owns the standards for interoperability between the agency and its partners. It contains business processes that have a common purpose (e.g., establish the interagency service agreement, identify the types of information to be exchanged, identify security and privacy requirements, define communication protocol, and oversee the transfer of information.)

Business Relationship Management Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
9	Create Business Relationship	The Create Business Relationship business process encompasses activities undertaken by the State agency to enter into a variety of business partner relationships, usually with other government agencies. These arrangements include third party payer contracts/agreements, Memoranda of Understanding (MOUs), interagency contracts and service agreements, patient data exchange agreements, access and capacity agreements.	1	No defined information system identified. Can utilize operating statistics and or costs information from existing information systems depending on the contract involved.
10	Manage Business Relationship	The Manage Business Relationship business process maintains the agreement between the State agency and the other party. This includes routine changes to required information such as authorized signers, addresses, coverage, and data exchange standards.	1	Relies on the primary system of record and other information systems (manual/paper) to monitor costs and/or clinical performance. Identify quantitative KPIs and automate data collection and dashboard reporting.
11	Engage in Joint Planning	The Engage in Joint Planning business process coordinates efforts and programs between agency business partners that have similar goals, objectives, and target populations. Although the goals and objectives may be similar, the specific activities undertaken are often very different but may represent complementary approaches, or comprehensive approaches when combined, to improving patient/client health status, plan of care and coordination of services.	1	Uses existing contract documents as well as financial and clinical outcomes to define and monitor performance. Automate performance of clinical & financial performance monitoring into a shared data base for strategic planning and planning use of resources at the

Business Relationship Management Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
				leadership level of each organization.
14	Create Communications Protocols	The Create Communications Protocols business process establishes mechanisms and requirements for routine and ad hoc communications between agency business partners. This requirement at present primarily governs communications protocols where consideration of the confidentiality requirements and legal requirements on all sides is critical to determine what data can be shared.	1	Requires sharing and communicating clinical, financial and operational performance off the primary system of record. Heavy reliance on manual processes as well as paper based systems as well. Utilize interfaces to extract and integrate real-time information from the primary system of record or 3rd party ETL (Extraction Transformation Load) products such as Monarch to extract non-real-time data into data warehouse for use by operations management.

2.5 Program Management



#

The Program Management business area houses the strategic planning, policy-making, monitoring, and oversight activities of the agency. These activities depend heavily on access to timely and accurate data and the use of analytical tools. This business area uses a specific set of data (e.g., information about the benefit plans covered, services rendered, expenditures, performance outcomes, and goals and objectives) and contains business processes that have a common purpose (e.g., managing the Medicaid program to achieve the agency's goals and objectives such as by meeting budget objectives, improving customer satisfaction, and improving quality and health outcomes).

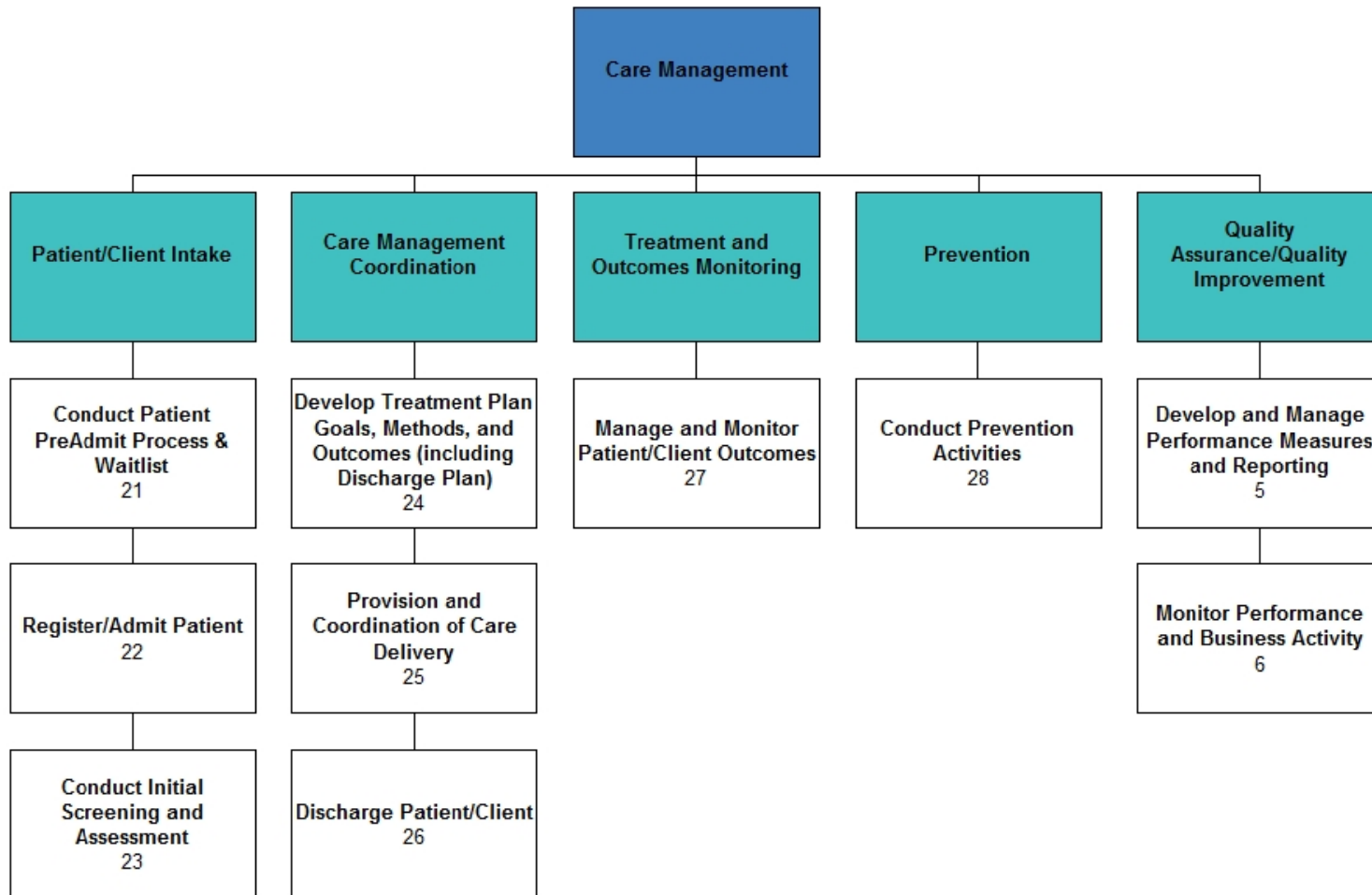
This business area includes a wide range of planning, analysis, and decision-making activities, including benefit plan design, rate setting, healthcare outcome targets, and cost-management decisions. It also contains budget analysis, accounting, quality assessment, performance analysis, outcome analysis, continuity of operations plan, and information management.

This is the heart of the Medicaid enterprise and the control center for all operations.

As the Medicaid enterprise matures, Program Management benefits from immediate access to information, addition of clinical records, use of standards, and interoperability with other programs. The Medicaid program is moving from a focus on daily operations (e.g., number of claims paid) to a strategic focus on how to meet the needs of the population within a prescribed budget.

Program Management Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
17	Respond to Consent Decrees	The Respond to Consent Decrees process receives and requests consent permissions, stores those permissions, locates the permissions when a specific patient/client's information is requested, ensures that the permissions are followed, and forwards the permissions with the requested data.	1	This business process involves manual forms. There is no system with interoperability capabilities (e.g., no system has HITSP that can exchange structured documents).
55	Develop Goals and Objectives	The Develop Goals and Objectives business process periodically assesses current mission statement, goals, and objectives to determine if changes are called for. Changes to goals and objectives could be warranted under a new administration or in response to changes in demographics or public opinion; or in response to natural disasters such as hurricanes, fires and floods.	1	Limited use of the primary system of record. Process relies on internal manual systems and external data sources. Develop and utilize a shared electronic data base and tracking system that integrates with process #11.

2.6 Care Management



The Care Management business area includes processes that support individual and population care management and prevention. It contains a broad set of business processes related to client care (e.g., identify and manage special populations, develop and implement the treatment plan, monitor and manage treatment and services, and manage client outcomes), and collects information about these activities.

Care Management Business Processes					
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Aggregated and Facility Specific Gap Analyses	
5	Develop and Manage Performance Measures and Reporting	The Develop and Manage Performance Measures and Reporting business process establishes internal and external mechanisms and requirements for developing, managing, and reporting performance measures and other data for providers/ contractors, quality, and outcomes, and to comply with state and federal reporting requirements. This process analyzes patient/client outcomes and service histories and trends, clinical indicators, costs, expenditures, assesses external factors affecting the program, assesses agency initiatives and plans, identifies significant measurable activities and outcomes, and creates and/or revises performance measures.	1	Aggregated Gap Analysis	All 4 hospitals use aspects of the primary system of record and also use unique supplemental internal Access databases and Excel spreadsheets. This is a time consuming factor in pulling information from various sources to effectively determine significant trends with appropriate actions for follow up. Embrace technology and use at fullest capacity to establish a platform of utilization and performance for future expansion and integration with other electronic formats. Eliminate the use of multiple local databases and spreadsheets and adopt standard electronic tracking/reporting tool.
				LSH Gap Analysis	Extracts off the primary system of record, the primary system of record data repository and a variety of manual and desktop based, e.g., Excel & Access used. External web based credentialing database used.
					Consolidate processes and tracking data tools

Care Management Business Processes					
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Aggregated and Facility Specific Gap Analyses	
					into an electronic format and create flexibility for updating of those admissions that are driven from the court system, transition into an electronic format.
				MHS Gap Analysis	<p>Extracts off the primary system of record, the primary system of record data repository and a variety of manual and desktop based, e.g., Excel & Access used. External web based credentialing database used.</p> <p>Integrate application & process information to minimize manual steps in shared electronic data bases.</p>
				TKH Gap Analysis	<p>The primary system of record used and Access database supported by paper.</p> <p>Consolidate processes and tracking data tools into an electronic format and create flexibility for updating of those admissions into an electronic format.</p>
				WMH Gap Analysis	<p>Extracts off the primary system of record, the primary system of record data repository and a variety of manual and desktop based, e.g., Excel & Access used. External web based credentialing database used.</p>

Care Management Business Processes					
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Aggregated and Facility Specific Gap Analyses	
					Integrate application & process information to minimize manual steps.
6	Monitor Performance and Business Activity	The Monitor Performance and Business Activity process utilizes the mechanisms and measures that were developed by the agency and/or licensing/accrediting organizations. The process includes the steps involved in implementing the mechanisms and measures to track agency activity and effectiveness at all levels. Examples include episodes of care, performance measures, outcome measures, and quality measures.	1	Aggregated Gap Analysis	<p>All 4 hospitals use aspects of the primary system of record and also use unique supplemental internal Access databases, Excel spreadsheets and external web based credentialing databases.</p> <p>Develop shared electronic format/ templates to be used and maintained to meet all aspects of regulatory standards impacting each organization. This electronic data tool set may be used for performance improvement activity, patient safety, quality measures of importance thus eliminating the necessity for duplicate manual forms that are different for each organization.</p>
				LSH Gap Analysis	<p>Extracts off the primary system of record, the primary system of record data repository and a variety of manual and desktop based, e.g., Excel & Access used. External web based credentialing database used.</p> <p>Place all data from patient safety, performance improvement into a shared network to eliminate the labor intensive efforts. This will</p>

Care Management Business Processes					
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Aggregated and Facility Specific Gap Analyses	
					also benefit the Utilization and Case Management operations of the system.
				MHS Gap Analysis	<p>Extracts off the primary system of record, the primary system of record data repository and a variety of manual and desktop based, e.g., Excel & Access used. External web based credentialing database used. HR system is not part of their system (Competency). Labor intensive.</p> <p>Utilize COM automation to upload, analyze, report and email monthly results.</p>
				TKH Gap Analysis	<p>Paper process used with the primary system of record and Access Databases.</p> <p>Place all data from patient safety, performance improvement into a shared network to eliminate the labor intensive efforts. This will also benefit the Utilization and Case Management operations of the system.</p>
				WMH Gap Analysis	<p>Extracts off the primary system of record, the primary system of record data repository and a variety of manual and desktop based, e.g., Excel & Access used. External web based credentialing database used.</p>

Care Management Business Processes					
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Aggregated and Facility Specific Gap Analyses	
					Utilize COM automation to upload, analyze, report and email monthly results.
21	Conduct Patient Pre-admission Process/Manage Wait List	The Conduct Patient Pre-admission Process/Manage Wait List business process receives data from the patient/client; pre-registers type of patient/client, patient/client service type needs, determines preferred facilities and programs, and may verify availability of services or beds; screens for required fields, edits required fields, verifies patient/client information with external data if available, and assigns an ID. Data is stored and then retrieved as openings occur in the appropriate facilities and programs.	1	Aggregated Gap Analysis	This process is almost entirely paper driven. Explore electronic forms that can be pre-populated and stored electronically for the pre-admission process and for managing the wait lists at all facilities.
				LSH Gap Analysis	All processes are paper driven. The OR operates on complete manual process. As appropriate, develop forms in an electronic format for utilization with shared access.
				MHS Gap Analysis	Collection of paper documentation as well as patient demographic information at time of admission entered into the primary system of record. Multiple paper forms are used for this process (AD-01, AD-02, AD-03). Labor intensive - all paper. Explore use of electronic forms.
				TKH Gap Analysis	Pre-admission steps are very labor intensive with paper forms. As appropriate, develop forms in an electronic

Care Management Business Processes					
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Aggregated and Facility Specific Gap Analyses	
					format for utilization with shared access.
				WMH Gap Analysis	Collection of paper documentation as well as patient demographic information at time of admission entered into the primary system of record. Explore use of electronic forms.
22	Register/Admit Patient/Client	Register/Admit Patient/Client business process receives intake data from the patient/client; checks for status (e.g., new, current, past); opens a patient/client file; validates data for required fields, edits required fields, verifies patient/client information with external entities if available, and assigns an ID. Additionally this process determines and/or assigns treatment area/location (in-patient or out-patient).	1	Aggregated Gap Analysis	Procedure for data collection and entry varies per hospital. The primary system of record is used to capture required demographic information and patient identifiers at every facility. Specific patient population requires completion of manual forms to support record in the primary system of record. Explore electronic forms that can be pre-populated and electronically signed and stored. Embrace technology and use at fullest capacity to establish a platform of utilization and performance for future expansion and integration with other electronic formats.
				LSH Gap Analysis	Manual collection and retention of documentation & entry into the primary system of record. Clinic scheduling at times part of this process.

Care Management Business Processes					
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Aggregated and Facility Specific Gap Analyses	
					Where appropriate, integrate application data sharing to minimize manual steps.
				MHS Gap Analysis	<p>Manual collection and retention of documentation & entry into the primary system of record. Consent and privacy forms are all on paper. Advanced Directives are required by HIPAA. Medical Record IDP assigned. Demographic data entered into the primary system of record system. Pharmacy and lab is done manually as required.</p> <p>Where appropriate, integrate application data sharing to minimize manual steps.</p>
				TKH Gap Analysis	<p>Pulls data in the primary system of record - process is paper driven. Challenge of integrating information.</p> <p>Where appropriate, integrate application data sharing to minimize manual steps in a shared type of electronic format.</p>
				WMH Gap Analysis	<p>Manual collection and retention of documentation & entry into the primary system of record.</p> <p>Where appropriate, integrate application data</p>

Care Management Business Processes					
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Aggregated and Facility Specific Gap Analyses	
					sharing to minimize manual steps.
23	Conduct Initial Screening and Assessment	The Conduct Initial Screening and Assessment business process receives response data from the patient/client, and reviews orders, assesses for health history and current status, lifestyle and living conditions (employment, religious affiliation, living situation) to determine risk factors, establishes risk categories and hierarchy, severity, and level of need; validates data for required fields, edits required fields, verifies information from external sources if available, diagnoses, and associates with applicable service and health care needs.	1	Aggregated Gap Analysis	<p>Procedure for data collection and entry varies per hospital. The primary system of record is used to capture required demographic information and patient identifiers at every facility.</p> <p>Utilize an electronic format to create a standard assessment applicable to all populations that may be modified or enhanced to address specific settings and age groups.</p>
				LSH Gap Analysis	<p>Paper driven steps done for Medical/Psychiatry. Limited use of the primary system of record - Still in transition.</p> <p>Explore moving required manual forms to any type of electronic version for multiple departmental/system access and elimination of manual steps.</p>
				MHS Gap Analysis	<p>Paper & manual form based process with input into the primary system of record. Medical record reconciliation is not done in the primary system of record. All data entered is shared.</p> <p>Explore use of electronic forms.</p>
				TKH Gap	Aspects of the primary system of record are

Care Management Business Processes					
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Aggregated and Facility Specific Gap Analyses	
				Analysis	used supported by manual forms and processes to collect patient information. Explore moving required manual forms to any type of electronic version for multiple departmental/system access and elimination of manual steps.
				WMH Gap Analysis	Paper & manual form based process with input into the primary system of record. Explore use of electronic forms.
				Aggregated Gap Analysis	The primary system of record and paper based forms were utilized according to facility practices and specific patient populations. Utilize an electronic template that identifies required components of treatment plan, goals, methods and outcomes to meet specific patient needs and regulatory standards. Embrace technology and use at fullest capacity to establish a platform of utilization and performance for future expansion and integration with other electronic formats.
				LSH Gap Analysis	This is detailed for Medicine and Psychiatry. Process involves paper support throughout. Psychiatry very paper dependant. Nursing and medical plan of care uses the primary system of record.
24	Develop Treatment Plan Goals, Methods, and Outcomes (including Discharge Plan)	<p>The Develop Treatment Plan Goals, Methods, and Outcomes business process uses Federal and State-specific criteria, rules, best practices and professional judgment to develop patient/client service plans that optimizes successful outcomes. It includes involving a team of professionals to engage in activities to track and assess the patient/client progress throughout the care process, proactively through prevention, establish and adapt a care plan tailored to meeting patient/client needs.</p> <p>The Develop Discharge Plan process uses Federal and State-specific criteria,</p>	1		

Care Management Business Processes					
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Aggregated and Facility Specific Gap Analyses	
		rules, best practices and professional judgment to develop a discharge plan that optimize successful outcomes. It includes activities to track and assess the patient/client progress during the episode of care and status at discharge, evaluate patient/client needs for ongoing care and prevention, support services and transfer to another level of care or facility.			Explore moving required manual forms to any type of electronic version for multiple departmental/system access and elimination of manual steps.
				MHS Gap Analysis	The primary system of record PCS used for admission and care plan. Paper forms & paper retention. Pharmacy all paper. Lab limited to LSH interface otherwise paper. Utilize interfaces and utilize electronic forms.
				TKH Gap Analysis	Electronic and manual data sources used. Explore moving required manual forms to any type of electronic version for multiple departmental/system access and elimination of manual steps.
				WMH Gap Analysis	Care plan is paper based. Supporting documentation from ancillary departments is paper and manually maintained. Utilize the primary system of record care plan.
25	Provision and Coordination of Care Delivery	The Provision and Coordination of Care Delivery business process uses Federal and State-specific criteria and rules to ensure appropriate and cost-effective medical services are identified, planned,	1	Aggregated Gap Analysis	Care plan is paper based and supported by the primary system of record in select facilities. Explore how to integrate electronic processes

Care Management Business Processes					
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Aggregated and Facility Specific Gap Analyses	
		provided and monitored for patients/clients. It includes activities to confirm delivery of services and compliance with the plan, as well as service planning and coordination, brokering of services (finding providers, establishing service limits, etc.), continuity of care, and advocating for the patient/client.			and systems at different facilities and for different populations. Utilize an electronic template that identifies required components of treatment plan, goals, methods and outcomes to meet specific patient needs and regulatory standards. Embrace technology and use at fullest capacity to establish a platform of utilization and performance for future expansion and integration with other electronic formats.
				LSH Gap Analysis	Medical paper reconciliation still has to take place. More labor intensive for Psychiatry services. Utilize Care Planning module and explore the integration of forms into an electronic format to prevent duplication of steps for users.
				MHS Gap Analysis	The primary system of record PCS used for admission and care plan. Pharmacy, lab, imaging, external providers are all manual reports. Data is manually entered into an Access database and pulled to trend performance on patient safety, risk and quality initiatives. Utilize interfaces and utilize electronic forms.
				TKH Gap	Required paper State forms are used for patient disposition and supported by aspects

Care Management Business Processes					
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Aggregated and Facility Specific Gap Analyses	
				Analysis	of the primary system of record and the Medical Record. Discharge and Medicine Reconciliation are on paper. Utilize a Care Planning module and explore the integration of forms into an electronic format to prevent duplication of steps for users.
				WMH Gap Analysis	Care plan is paper based. Supporting documentation from ancillary departments is paper and manually maintained. The primary system of record used to document treatments, notes & interventions. Utilize the primary system of record care plan.
				Aggregated Gap Analysis	This process is driven by State requirements and facility practices that are almost entirely manual and paper based. Explore the adoption of standardized electronic forms and embrace technology and use at fullest capacity to establish a platform of utilization and performance for future expansion and integration with other electronic formats.
26	Discharge Patient/Client	The Discharge Patient/Client business process is responsible for managing the discharge of a patient following a completed course of treatment, stay in a facility, or participation in a program, for any reason. This process includes clinical team evaluation of the patient's status against their discharge plan. The process uses data from the Admit/Enroll patient/client process and from patient/client data and records gathered throughout the period of service, validates the discharge data, loads or	1	LSH Gap Analysis	Discharged out of The primary system of record PCS, also use the primary system of record UR etc. to manage process. PCS

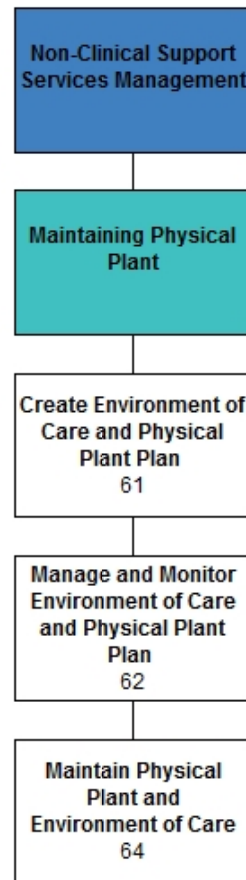
Care Management Business Processes					
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Aggregated and Facility Specific Gap Analyses	
		sends the data into the patient/client and Provider/ Contractor databases or interfaces, loads or sends the data to billing systems for payment, and produces notifications for providers/contractors and for reporting purposes.			Practice is driven by a paper process requiring multiple entries. Forms are required of duplicate information. Transition into electronic formats the forms requiring multiple data entry of duplicate information to have shared users requiring access for placement/discharge/next level of care.
				MHS Gap Analysis	Discharged out of PCS The primary system of record, paper & manual processes. Electronic 1st quarter 2013. Consents are all on paper. All aspects of the primary system of record have not been utilized (for upgrades integration of tools). Manual steps required to discharge and process patient accounts in the primary system of record (Housekeeping, food and nutrition, lab, imaging). Explore use of electronic forms.
				TKH Gap Analysis	This process is manually driven and supported by pieces of the primary system of record. Where appropriate, integrate application data sharing to minimize manual steps in a shared type of electronic format.
				WMH Gap	Discharged out of PCS The primary system of record, manual ADT form, paper & manual

Care Management Business Processes					
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Aggregated and Facility Specific Gap Analyses	
				Analysis	processes. Explore use of electronic forms.
27	Manage and Monitor Patient/Client Outcomes	The Manage and Monitor Patient/Client Outcomes business process uses Federal and State-specific criteria and rules to ensure that the providers/contractors/members of care delivery team chosen and services delivered optimizes client and client population outcomes. It includes activities to track and assess effectiveness of the services, treatment plan, providers/contractors, service planning and coordination, episodes of care, support services, and other relevant factors. It also includes ongoing monitoring, management, and reassessment of services and treatment plans for need, appropriateness, and effectiveness, and monitoring of patient/client populations and their outcomes.	1	Aggregated Gap Analysis	The primary system of record or manually driven procedures influenced by performance improvement patient safety initiatives. Utilize available technology at fullest capacity to establish a platform of utilization and performance for future expansion and integration with other electronic formats.
				LSH Gap Analysis	Manual processes documented in the primary system of record UR. Supplemented with the primary system of record data repository, Access & Excel Workbooks. This process is in the infancy stage for this facility due to the patient population being served. Utilize COM automation to upload, analyze, report and email monthly results.
				MHS Gap Analysis	Manual processes documented in the primary system of record UR. Supplemented with the primary system of record data repository, Excel Workbooks. This process is in the infancy stage for this facility due to the patient population being served. Utilize COM automation to upload, analyze,

Care Management Business Processes					
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Aggregated and Facility Specific Gap Analyses	
					report and email monthly results.
				TKH Gap Analysis	Paper intensive system. Lack of interface for Pharmacy and many systems.
				WMH Gap Analysis	Manual processes documented in the primary system of record UR. Supplemented with paper based systems such as MAR, admission package, UR committee notes.
					Utilize COM automation to upload, analyze, report and email monthly results.
				Aggregated Gap Analysis	The primary system of record or manually driven procedures influenced by performance improvement patient safety initiatives.
28	Conduct Prevention Activities	The Conduct Prevention Activities business process provides training, education and support to vulnerable populations to assist in preventing individuals from engaging in harmful behaviors and provide support for at risk population.	1		Eliminate the use of multiple local databases and spreadsheets and adopt standard electronic tracking/reporting tool. Utilize available technology at fullest capacity to establish a platform of utilization and performance for future expansion and integration with other electronic formats.
				LSH Gap Analysis	Limited use of the primary system of record primarily inquiry & statistical gathering of data. Variety of supplemental systems used such as Excel & Access, credentialing database, satisfaction surveys and incident/occurrence

Care Management Business Processes					
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Aggregated and Facility Specific Gap Analyses	
					reporting. Utilize COM automation to upload, analyze, report and email monthly results.
				MHS Gap Analysis	Limited use of the primary system of record primarily inquiry & statistical gathering of data. Variety of supplemental systems used such as Excel & Access, credentialing database, PACE and incident/occurrence reporting. On time having Pace system and EPRS is (Manual). Center for Staff Development. Utilize COM automation to upload, analyze, report and email monthly results.
				TKH Gap Analysis	Data pulled from the primary system of record supported by multiple paper reports and use of Access database.
				WMH Gap Analysis	Limited use of the primary system of record primarily inquiry & statistical gathering of data. Variety of supplemental systems used such as Excel & Access, credentialing database, satisfaction surveys and incident/occurrence reporting. Utilize COM automation to upload, analyze, report and email monthly results.

2.7 Non-Clinical Support Services Management

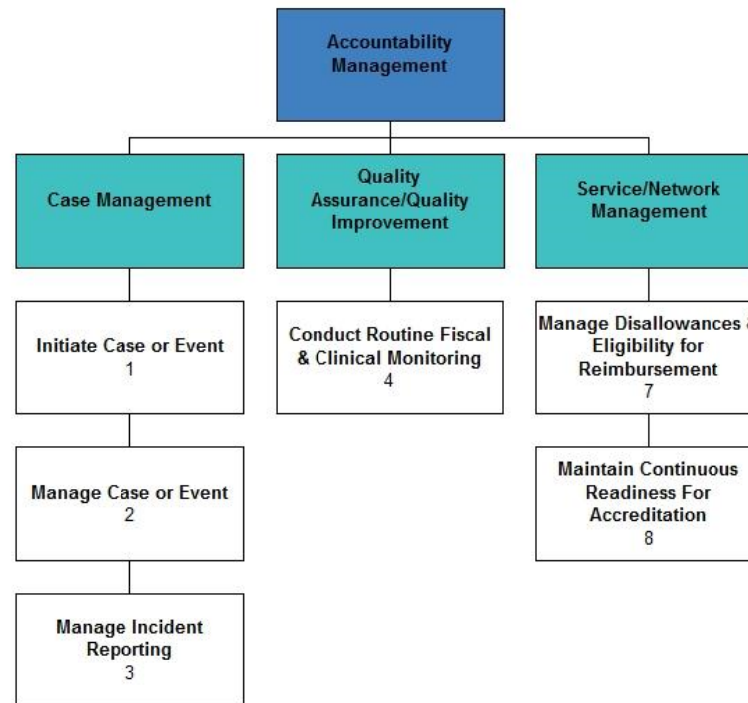


The Non-Clinical Support Services Management business area includes processes that support individuals in a primarily inpatient setting. It contains a broad set of business processes related to supporting patient/client care (e.g., dietary, housekeeping, laundry, engineering), and collects information about these activities as depicted below.

Non-Clinical Support Services Management Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
61	Create Environment of Care and Physical Plant Plan	The Create Environment of Care and Physical Plant Plan business process uses Federal and State-specific criteria (if applicable), rules, best practices and professional judgment to develop activity management plans that optimize successful outcomes. It includes involving a team of professionals to engage in activities to track and assess the progress throughout the activity process, establish and adapt an activity plan tailored to meeting activity area needs.	1	Plans are paper based and created in order to be compliant with State/Federal requirements. Utilize document control technology.
62	Manage and Monitor Environment of Care and Physical Plant Plan	The Manage and Monitor Environment of Care and Physical Plant Plan business process uses Federal and State-specific criteria (if applicable) and rules to ensure that the assigned activity resources are chosen and services are delivered to optimize activity area. It includes activities to track and assess effectiveness of the services, service/maintenance plan, staff/contractors, service planning and coordination and other relevant factors. It also includes ongoing monitoring, management, and reassessment of activities and service/maintenance plans for need, appropriateness, and effectiveness, and monitoring of their outcomes.	1	Primarily use Access database to monitor & coordinate projects/work-orders as well as Excel workbooks. Rely on existing sources of information such as plans & MSDS. Enhance database application to minimize manual effort on tracking job/project management and reporting.
64	Maintain Physical Plant and Environment of Care	The Maintain Physical Plant and Environment of Care business process uses Federal and State-specific criteria (if applicable), rules, best practices and professional judgment to develop a maintenance plan that optimize resources and ensure successful outcomes. It includes activities to track and assess the activity progress and manage activity resources.	1	Primarily use Access database to monitor & coordinate projects/work-orders as well as Excel workbooks. Enhance database application to minimize manual effort on

Non-Clinical Support Services Management Business Processes				
Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
				tracking job/project management and reporting.

2.8 Accountability Management



The Accountability Management business area incorporates those processes that focus on program monitoring and compliance (e.g., auditing and tracking appropriateness and quality of care, adherence to program and grant requirements, adequate documentation, and fraud and abuse). This business area collects information about individual providers/contractors, clients, and services that are used for developing Federal, State, and program measures related to outcomes, performance, quality, and others. This process will mature with access to clinical data that improve the capability for monitoring and reporting quality and identifying fraud and abuse.

Accountability Management Business Processes

Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
1	Initiate Case or Event	The Initiate Case or Event business process uses criteria and rules to identify guidelines for competencies, patterns or parameters of acceptable/unacceptable standards of care or processes, regulatory requirement or criteria that determine when action is needed, and open a case for further investigation. Each type of case is driven by different criteria and rules, different relationships, and different data.	1	<p>Use Access database to input paper based incident reports. Use paper based shift reports on shared directory for collection of relevant data where appropriate as well as medical record.</p> <p>Utilize COM automation to trigger high severity level incident reports to key personnel.</p>
2	Manage Case or Event	The Manage Case or Event business process includes direct observation, data from ongoing monitoring, referral from an investigative episode, and/or a sentinel event, receives information to respond to the case/or event from an investigative unit/team with the direction to respond to the case, participate in the case or event, or pursue the case/event to closure. The case may result in changes in the delivery system, in corrective action, in removal of a provider, contractor, trading partner or client from the program; or the case may be terminated or suspended. Each type of case/event is driven by different criteria and rules, different relationships, and different data. Each type of case/event calls for different types of external investigation.	1	<p>Use Access database to input paper based incident reports. Use paper based shift reports on shared directory for collection of relevant data where appropriate as well as medical record. Follow-up investigation and resolution relies upon manual & paper based systems.</p> <p>Use technology to integrate data collection and minimize manual processes.</p>

Accountability Management Business Processes

Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
3	Manage Incident Reporting	The Manage Incident Reporting business process collects data from the management of a case or event (DPH - BoPHF #2). Trends, as well as specific action plans, will be recorded and maintained. Enhancements made in the delivery system and/or operations will be referenced in the plan. Integration of this information will be a part of the agency safety and/or performance improvement program.	1	<p>Use Access database to input paper based incident reports. Use information contained in this database to analyze and report statistics and trends internally as well as mandated external reporting. Also relies on a number of manual and paper based data collect tools; very manual.</p> <p>Utilize Microsoft COM automation to upload, analyze, report and email monthly results.</p>
4	Conduct Routine Fiscal and Clinical Monitoring	The Conduct Routine Fiscal and Clinical Monitoring business process monitors services, outcomes, and expenditures. The process regularly examines the most current patient/ client, service, and provider/contractor data on service delivery and costs, service coverage and improvement, patient/client outcomes, expenditures and other factors as required.	1	<p>The primary system of record patient care & utilization modules used. Access database also utilized to manage process and retrieve information for utilization monitoring and reporting.</p> <p>Integrate application & process information to minimize manual steps.</p>

Accountability Management Business Processes

Process #	Business Process	Process Description	Aggregated Capability Maturity Matrix	Gap Analysis
7	Manage Disallowances and Eligibility for Reimbursement	The Manage Disallowances process monitors and helps assure provider/contractor compliance with requirements for receiving funding and reimbursement. The process assists providers/contractors in adopting documentation and business practices that support obtaining sufficient and appropriate revenue, and protect them from vulnerability to revenue reductions. Different payers may have different criteria and rules.	1	Access database is used for notices of non-coverage and done in care management. Providers send paper requests to Health Information Management (HIM) that has to communicate with the departments (Case Management and Patient Accounts Compliance)
8	Maintain Continuous Readiness for Accreditation	The Maintain Continuous Readiness for Accreditation business process includes all activities related to survey preparation in compliance with the Joint Commission standards and CMS conditions of participation (COP).	1	The majority of data work is done manually. Data can be exported into Excel or Access and is then formatted and analyzed for reporting requirements. Credentialing is all done and maintained for accreditation in a manual process (HRCMS).

Recommendations

3.1 Business Capability Matrix Related Recommendations

All maturity matrices for the DPH - BoPHF business processes scored overall at level 1. There were exceptions within steps of a matrix where a level 2 was achieved while the overall level achieved was a 1. Many processes have pieces of their business conducted electronically but most also rely on paper based, manual interventions with a large amount of labor intensive work to enter, maintain, capture, and/or analyze the data.

On eight of the matrices, a level 2 was achieved on one or more of the scoring categories. For two of those processes a score of 2 was achieved for Interoperability. For all eight processes a score of 2 was achieved on sections of Data Access and Accuracy. On five matrices, Quality and Accuracy of Process Results (Validation) received a level 2 score. On one matrix, Effort to Perform (Efficiency) was scored at a level 2 and on one process a level 2 was achieved for Cost Effectiveness.

Recommendations are identified in a sequential listing, however, the importance of these are at the same level of priority to move ahead in the transition of any systems. An operational framework with defined standards of performance for the EOHHS creates the platform by which the decision to purchase and embrace technology in the care delivery system can have the most significant impact.

Observations and Recommendations:

1) Observations:

Many of the hospitals' processes are affected by information silos and the reason for this is quite varied. In some instances, hospital policies and procedures could be optimized to better fit available technology (E.g. policy decision to have some Care Plans on paper). However, there are also cases where the primary system of record is not flexible enough to meet the varied patient care environments (acute, long-term care, pediatric, psychiatric, etc) across all 4 DPH-BoPHF facilities.

These information silos are widely recognized and the desire to break down these silos was a common strategic goal across DPH-BoPHF and the other 2 agencies. Although the hospitals continually work to break these barriers down, more progress can be made.

Recommendations:

- I. A thorough review of policies and procedures focused on eliminating redundancy, improving standardization, increasing productivity and introducing existing technological capabilities where it could meet business process needs is necessary. This step would set the stage for future

technology investment, improve the quality of care and help manage budgetary constraints. Review of the policies and procedures must include modification/elimination of unnecessarily stringent or outdated practices. When preparing for and designing the Next Generation System (NGS) duplication of such practices should be avoided, otherwise poor practices will be embedded into the new system. This step is requested as a precursor before creating any requirements for a new system, e.g., structure follows process. This step is critical for establishment of a consistent platform of performance (work standardization) and for successful system implementation.

- II. Adoption of technology must be backed by new policies, adequate training and supported by senior management as an expectation for standards of performance required in performing operations by the Executive Office of Health and Human Services (EOHHS).
- III. The DPH – BOPHF hospitals operate within the larger context of the Commonwealth. Therefore, they rely on many State level systems that often do not meet the hospitals' needs. State-based information systems, those not controlled by DPH - BoPHF, must be examined for integration into the NGS. Prioritizing of this effort should be based on operational impact, e.g. labor management. Labor costs comprise over 50% of the hospitals' total operating budget and yet there is no flow of information between the hospitals' system of record and the State's payroll system. The result is that many critical processes, like staffing decisions for patient care, are highly manual and labor intensive. Successful hospitals today are examining the use of personnel on a regular basis by analyzing allocated worked hours by employee specialty, by worked cost center, by department, by day of week, by hour of day, etc., to closely match staffed hours to patient demands. These data elements are currently captured in Excel worksheets, payroll and HRCMS. Payroll needs to be more automated and data should be extracted and integrated into the Data Warehouse for regular use by operations management. A concerted effort to improve the communication between the DPH – BoPHF hospitals and the larger State-wide organizations they rely on for critical processes would pay dividends.

1) Observations:

Pharmacy (and general Computerized Physician Order Entry) is a top concern of many of the SMEs interviewed. The problems of having no Computerized Physician Order Entry (CPOE) and using manual medication reconciliation are not only labor intensive and duplicative but also introduce opportunities for medical errors. An integrated system would save time, money and improve patient care/outcomes.

Recommendations:

- I. The Next Generation System must allow for CPOE and interface with the pharmacy. Additionally, integration of a bedside barcode medication administration system is necessary to reduce medication errors. Addressing these problems is one of the most pressing issues at all of the facilities and suggested as a top priority.

2) Observations:

The current system (the primary system of record) is a hospital system and does not work as well for long-term care facilities, such as MHS or WMH, where the length of stay (LOS) is years and not days. In addition, psychiatric services provided at LSH also fits into this unique category of needs based upon State regulations/requirements. Finally, different flavors of the primary system of record were adopted by each facility.

Recommendations:

- I. The Next Generation System (NGS) must work in all settings of patient care delivery (acute, extended and long-term care) for diverse age groups and populations. This could potentially mean the adoption of multiple systems that interface.
- II. The Next Generation System (NGS) should be universally adopted across all hospitals.
- III. The NGS is recommended to be standardized whenever possible for ease of installation, maintenance and training and to impact and enhance management practices.
- IV. A common standardized chart of accounts and charge master structure must be adopted and integrated into the NGS across all 4 hospitals.
- V. An integrated Incidence/Occurrence reporting system should be integrated into the NGS across all 4 hospitals.

3) Observations:

Many business processes are manually driven, involve significant paperwork and use a patchwork of information technology. A significant portion of these manual processes could be significantly improved through ongoing training on existing technology.

Recommendations:

- I. Electronic signature capabilities would increase efficiency.
- II. The ability to easily access scanned documents should be a requirement in the NGS. Currently documents are not easily indexed and stored documents are difficult to locate and retrieve. A master filing and archiving procedure for all facilities is suggested for consistency.
- III. All 4 hospitals are using the same office suite software. Leveraging existing capabilities of this tool set can eliminate some manual steps, transparently convert what was previously manual data entry to electronic format and reduce errors. This technology can also be used to automatically analyze

data from a variety of information systems/sources, examine trends and automatically alert key managers via email of required changes. Com-based component technology has been embedded into all versions allowing Excel, Outlook, Access and Word to be automated and integrated using Visual Basic Script, Java Script or other programming languages. This technology already exists and requires ongoing end user training, modest IT programming resources and network process scheduling to make it available.

- IV. Process improvement techniques need to be integrated into how data is obtained and managed along with the data systems utilized and these process improvements must be supported by ongoing trainings. For example, currently PDF forms are photocopied manually completed and then manually keyed into Access database applications. Adobe Acrobat (PDF's parent product) can convert this form to electronic format which can be emailed and completed by the end user. The end user can email this back to the sender where it is automatically received, the data is extracted and automatically appended to the Access database with not human interaction involved. This simple technology eliminates a labor intensive effort, reduces error and significantly improves the timeliness of the information availability. Other software products may be available to track and report on various processes that are currently performed manually or in Microsoft products, i.e., Care Management, Utilization Review, and Denials Management. These products can often take electronic feeds from other systems to minimize duplication of work.

4) Observations:

Duplication of efforts is inevitable when the physician or nurse must see the patient and then go back and complete all documentation.

Recommendations:

- I. If feasible, implement the use of wireless and hand held devices. This will allow physicians to quickly enter notes into charts, use CPOE at the bedside, etc. It would save time and increase accuracy.
- II. Establish guidelines that are department specific for any diagnostic/patient monitoring equipment (Point of Care) or technology to interface in an electronic format to eliminate manual transfer of data into the primary system of record system and/or paper treatment plans.